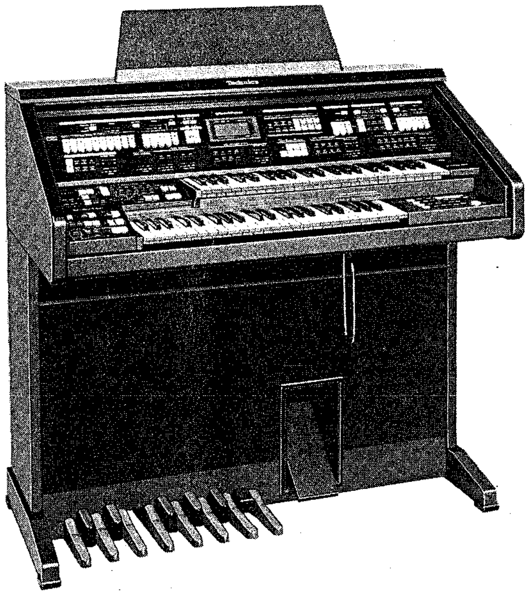
ORDER NO. EMID861152

Service Manual

Electronic Organ

SX-EX70



Cabinet Color

K..................Black Face

(EN), (EI), (EH), (EB), (EF), (EZ), (EW), (EL), (EP), (EK), (MC), (XT), (XL), (XR), (XS), (X), (XX), (XV)

AREAS

(EN):	Norway, Sweden, Denmark	(MC):	Canada
(EI):	Italy	(XT):	Taiwan
(EH):	Holland	(XL):	New Zealand
(EB):	Belgium	(XR):	Australia
(EF):	France, Austria	(XS):	Malaysia, Singapore, South Africa
(EZ):	Germany	(X):	the Middle East, Hong Kong, the Philippines, Indonesia
(EW):	Switzerland		
(EL):	Finland		
(EP):	Spain	(XX):	Peru, Chile
(EK):	the United Kingdom	(XV):	Venezuela, Ecuador, Panama

Specifications

keyboard		upper manual 44 keys, lower manual 44 keys, pedal keyboard 13 keys, full bass pedal 1 key
one touch play		on
fullband setting computer		fullband setting computer, record*, 1~5 (lower keyboard)
play sequencer		bass, lower, upper, solo, record*
voice setting computer		set, 1~7, cancel, 20 combination VSC (lower keyboard)
tone selector		orchestral conductor (upper...7, lower...7)
upper tones	tab voices	flute 16′, 8′, 5-1/3′, 4′, 2-2/3′, 2′, 1-1/3′, 1′, string 8′, 4′, volume, (record*...flute level)
	(percussive tone)	5-1/3′, 4′, 2-2/3′, 2′, click, long, volume
	(harmonic coupler)	2-2/3′ (program), record*
	organ presets	I, II, III, IV, record*, 20 organ presets, digital drawbars
	string ensemble	cello, violin, volume
	vocal ensemble	volume
	percussive presets	piano, electric piano, harpsichord, clavi, vibraphone, banjo, guitar, jazz guitar, harmonic control, volume
	orchestral presets	trombone, trumpet, saxophone, french horn, clarinet, accordion, wah brass, synthe brass, harmonic control, volume
	solo presets	violin, harmonica, trombone, trumpet, saxophone, clarinet, flute, oboe, pan flute, whistle, synthe I, II, harmonic control, volume
lower tones	tab voices	flute 8′, 4′, 2′ string 8′, 4′, volume (record*...flute level)
	(harmonic coupler)	2′ (program), record*
	organ presets	record*, digital drawbars
	string ensemble	cello, violin, volume
	vocal ensemble	○ (U/L)
	percussive presets	○ (U/L)
	orchestral presets	○ (U/L)
	solo presets	○ (U/L)

bass tones		bass 16′, 8′, acoustic bass, bowed bass, electric bass, chopper bass, synthe bass, tuba, harmonic control, volume
effects	bass solo	○
	sustain	(upper) on, control; (percussive presets) on, control; (lower) on, control; (bass) control
	slow attack	○
	multi-tremolo/vibrato	U tab voices, L tab voices, vibrato, slow/fast, (record*...tremolo speed)
	effect conductor	chorus, celeste, phaser, U tab voices, U/L percussive, U/L orchestra, U/L solo, L tab voices, cancel
	digital reverb	○
	glide	foot switch L
techni-chord		on, close/open (program), record*
drum percussion (selectors)		march, shuffle, swing I, II, 8 beat, funk rock, 16 beat, samba rock, ballad, swing rock, disco I, II, rhumba, guaracha, bossa nova I, II, mambo, cha-cha, samba, baion, waltz, tango, jazz waltz
(controls)		on, mellow, drum variation on, synchro & break, start/stop, volume, foot switch L, glide/rhythm
tempo set		I, II, manual, fine, tempo, record*
arrange percussion		I, II, III
intro & ending		on, vari
fill in		I, II, solo
rhythmic orchestra		rhythmic, melodic, I/II, volume
auto play chord		fingered, memory, cancel
program chord computer		PCC, cancel, record*, I𝄞—, ◀, ▶, ⊢⌒⊣, ⊢⌒⊣, ⊢++⊣, 𝄋 𝄌, D.S, —‖, ⊂⊃, ⊣ ⊢, (lower keyboard)
program rhythm computer		composer I, II, III, rhythm sequencer on, record*, clear, beat, 2nd bar, triplet, accent/pitch, I, II, III, 1~16, I𝄞—, ◀, ▶, ⊢⌒⊣, ⊢⌒⊣, ⊢++⊣, 𝄋 𝄌, D.S., —‖, ⊂⊃, ⊢⇄⊣, ⊣ ⊢, (lower keyboard)
transpose		control (G~C~F#)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

tuning	free set, +, −
musical display	mode selector (mode, function)
program function switches	knee lever, foot switch R, L, full base pedal, record*
MIDI	set, clock int/MIDI, start/stop, program change, effect, sustain, part select (bass, lower, upper, solo), MIDI terminals (in, out)
others	power switch, main volume, expression pedal, headphone jack, input jack, output jacks, 2ch/3ch, microphone jack (with volume), ext I/O (FD) terminal, initial (lower keyboard), digital momory pack slot
output	200W

speakers	30cm (11-13/16")×1, 20cm (7-7/8")×3, 6cm (2-3/8")×2
power requirement	400W, 500VA (Canada)
	AC 120/220/240V 50/60Hz AC 120V 60Hz-North America, Taiwan AC 220V 50/60Hz-Europe (except for England)
cabinet (W×H×D)	111.4cm×103.3cm×61.6cm (43-27/32"×40-21/32"×24-1/4")
net weight without bench	75kg (165.3lbs.)

- *Common "record" button is used for these buttons.
- Specifications subject to change without notice.

CONTENTS

■ INTRODUCTION

HOW TO ASSEMBLE THE ORGAN I-2
ARRANGEMENT OF CONTROL PANEL I-2
DISASSEMBLY INSTRUCTIONS I-4
PRINTED CIRCUIT BOARDS LOCATION I-6
MEASUREMENTS AND ADJUSTMENTS I-7
PRECAUTIONS BEFORE SERVICING I-9
KEYBOARD RANGES I-11

■ SCHEMATIC DIAGRAM

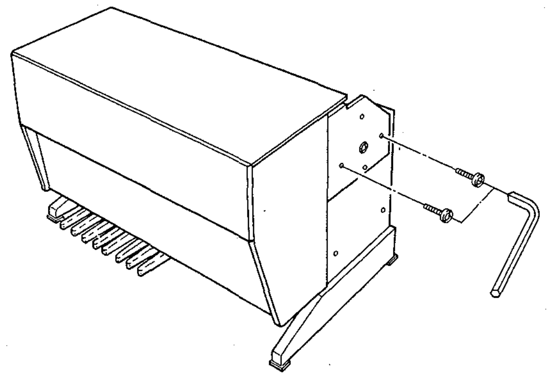
TOTAL BLOCK DIAGRAM II-1
MB MOTHER CIRCUIT BOARD II-4
WIRING CONNECTION DIAGRAM II-7
SAS SYSTEM ASSIGNER CIRCUIT BOARD II-9
SAS SYSTEM ASSIGNER CIRCUIT DIAGRAM II-11
TGM TONE GENERATOR MODULE CIRCUIT BOARD II-13
TGM TONE GENERATOR MODULE CIRCUIT DIAGRAM II-15
ORG ORGAN CIRCUIT BOARD II-17
ORG ORGAN CIRCUIT DIAGRAM II-19
PCT PERCUSSIVE TONE CIRCUIT BOARD II-21
PCT PERCUSSIVE TONE CIRCUIT DIAGRAM II-23
OPS ORCHESTRAL PRESETS CIRCUIT BOARD II-25
OPS ORCHESTRAL PRESETS CIRCUIT DIAGRAM II-27
DPPS DIGITAL PERCUSSIVE PRESETS CIRCUIT BOARD II-29
DPPS DIGITAL PERCUSSIVE PRESETS CIRCUIT DIAGRAM II-31
DSBA DIGITAL SOLO/BASS/ACCOMPANIMENT CIRCUIT BOARD II-33
DSBA DIGITAL SOLO/BASS/ACCOMPANIMENT CIRCUIT DIAGRAM II-35
SEL SELECTOR CIRCUIT BOARD II-37
SEL SELECTOR CIRCUIT DIAGRAM II-39
DP DRUM PERCUSSION CIRCUIT BOARD II-41
DP DRUM PERCUSSION CIRCUIT DIAGRAM II-43
LPM TREMOLO & PHASER MODULATION CIRCUIT BOARD II-45
LPM TREMOLO & PHASER MODULATION CIRCUIT DIAGRAM II-47
CSM CELESTE & STRING ENSEMBLE CIRCUIT BOARD II-49
CSM CELESTE & STRING ENSEMBLE CIRCUIT DIAGRAM II-51
MIX MIXING CIRCUIT BOARD II-53
MIX MIXING CIRCUIT DIAGRAM II-55
REV REVERB CIRCUIT BOARD II-57
REV REVERB CIRCUIT DIAGRAM II-59
CPR UPPER CONTROL PANEL RIGHT CIRCUIT DIAGRAM II-61
CPR UPPER CONTROL PANEL RIGHT CIRCUIT BOARD II-63
CPL UPPER CONTROL PANEL LEFT CIRCUIT BOARD II-66
CPL UPPER CONTROL PANEL LEFT CIRCUIT DIAGRAM II-69
CPSL LOWER CONTROL PANEL LEFT CIRCUIT BOARD II-71
CPSL LOWER CONTROL PANEL LEFT CIRCUIT DIAGRAM II-73
CPSR LOWER CONTROL PANEL RIGHT CIRCUIT BOARD II-75
LF1 LF2 FILTER CIRCUIT BOARD II-75
CPSR LOWER CONTROL PANEL RIGHT CIRCUIT DIAGRAM II-76
MKB MANUAL KEYBOARD CIRCUIT DIAGRAM II-77
MKB MANUAL KEYBOARD CIRCUIT BOARD II-77
PKB PEDAL KEYBOARD CIRCUIT BOARD II-77
PKB PEDAL KEYBOARD CIRCUIT DIAGRAM II-78
EXP EXP CIRCUIT II-79
JACK1 NW JACK1 & NETWORK CIRCUIT DIAGRAM II-80
JACK1 JACK1 CIRCUIT BOARD II-81
NW NETWORK CIRCUIT BOARD II-81
MD MUSICAL DISPLAY CIRCUIT BOARD II-82
MD MUSICAL DISPLAY CIRCUIT DIAGRAM II-83
JACK2 JACK2 CIRCUIT II-85
MPC MEMORY PACK CONTROL CIRCUIT DIAGRAM II-86
MPC MEMORY PACK CONTROL CIRCUIT BOARD II-86
MP MEMORY PACK CIRCUIT DIAGRAM II-87
MP MEMORY PACK CIRCUIT BOARD II-88
ACP PS PA1 PA2 AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER1, 2 CIRCUIT BOARD II-89
ACP PS PA1 PA2 AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER1, 2 CIRCUIT DIAGRAM II-91

■ EXPLODED VIEWS & REPLACEMENT PARTS LIST

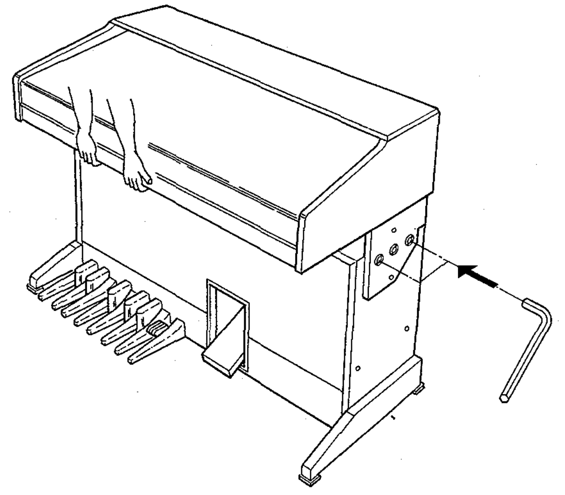
EXPLODED VIEWS OF CABINET III-1
REPLACEMENT PARTS LIST...... Mechanical Parts III-3
EXPLODED VIEWS OF MANUAL KEYBOARD III-5
EXPLODED VIEWS OF PEDAL KEYBOARD III-6
REPLACEMENT PARTS LIST...... Electrical Parts III-11
PACKING III-26

HOW TO ASSEMBLE THE ORGAN

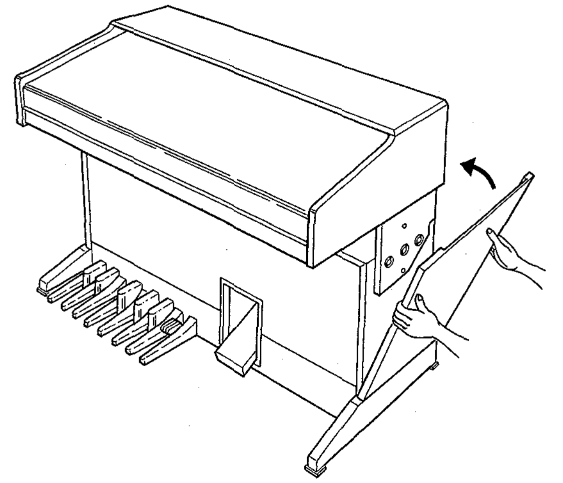
1. Remove the red screws using the supplied wrench.
2. Holding the upper cabinet section, lift it into position and tighten the red screws firmly.
3. Hold each side panels with both hands and install the side panel on the side board of cabinet.
4. Set the music rack on the top cover.
   Unlock the sliding cover with the accessory key.



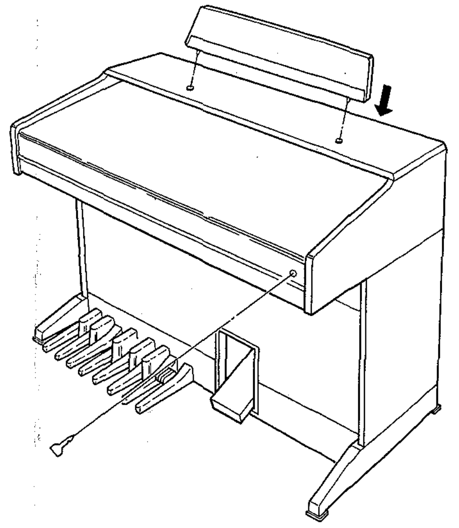
[Fig.-1]



[Fig.-2]

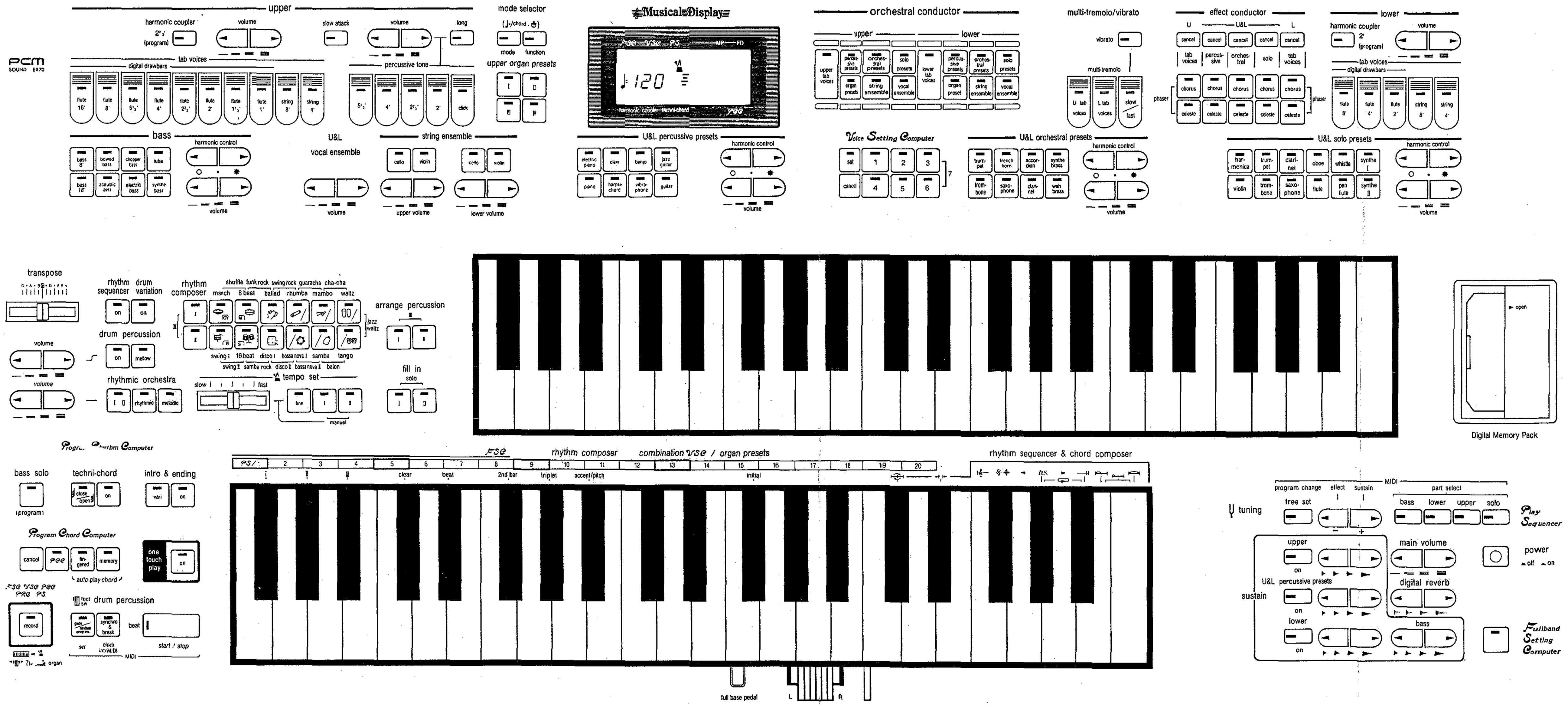


[Fig.-3]



[Fig.-4]

ARRANGEMENT OF CONTROL PANEL



upper
harmonic coupler
(program)
volume
slow attack
long
mode selector
mode
function
upper organ presets
tab voices
digital drawbars
percussive tone
PCM SOUND EX70
MusicalDisplay
harmonic coupler
techni-chord
bass
harmonic control
volume
U&L
vocal ensemble
string ensemble
upper volume
lower volume
U&L percussive presets
orchestral conductor
upper
lower
multi-tremolo/vibrato
vibrato
multi-tremolo
effect conductor
U&L
phaser
lower
harmonic coupler
(program)
volume
tab voices
digital drawbars
Voice Setting Computer
set
cancel
U&L orchestral presets
U&L solo presets
transpose
volume
rhythm sequencer
drum variation
rhythm composer
drum percussion
rhythmic orchestra
tempo set
arrange percussion
fill in
solo
Program Rhythm Computer
bass solo
techni-chord
intro & ending
(program)
Program Chord Computer
cancel
memory
one touch play
auto play chord
record
drum percussion
start / stop
MIDI
Digital Memory Pack
open
rhythm composer
combination VSC / organ presets
rhythm sequencer & chord composer
tuning
program change
effect
sustain
free set
part select
bass
lower
upper
solo
Play Sequencer
upper
main volume
power
off
on
sustain
U&L percussive presets
digital reverb
lower
bass
Fullband Setting Computer
full base pedal
L
R
foot sw
knee lever

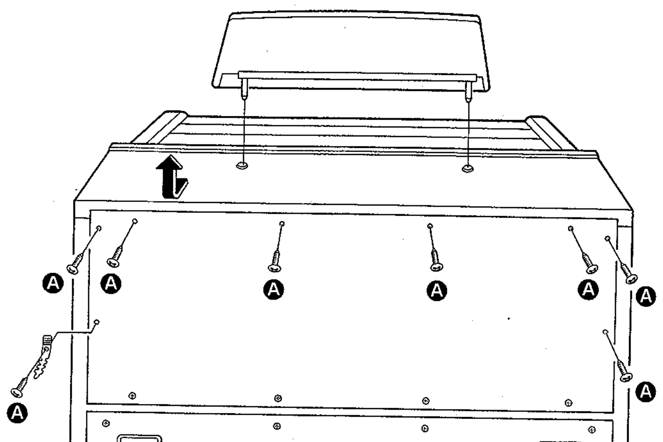
DISASSEMBLY INSTRUCTIONS

1. **Music Rack** (Fig.-5)

a) Music rack can be removed upward.

2. **Top Cover** (Fig.-5)

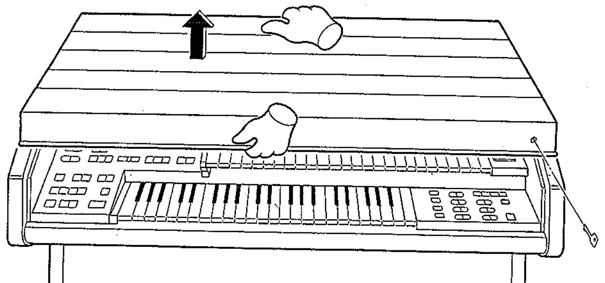
a) Remove the 8 screws Ⓐ located on the rear board.
b) Remove the top cover, slide it backward and lift.



[Fig.-5]

3. **Silding Cover** (Fig.-6)

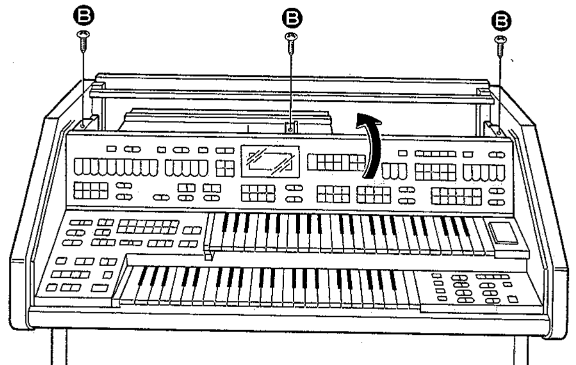
a) Unlock the sliding cover with the accessory key.
b) After removing the top cover, remove the sliding cover in its fully-closed position.



[Fig.-6]

4. **Upper Control Panel** (Fig.-7)

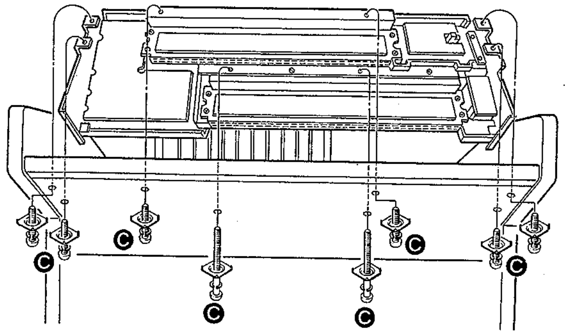
a) Remove both top cover and sliding cover according to steps 2 and 3.
b) Remove the 3 red screws Ⓑ which fasten the upper control panel.
c) Then the upper control panel can be opened upwards.



[Fig.-7]

5. **Keyboard & End Cover Unit** (Fig.-8)

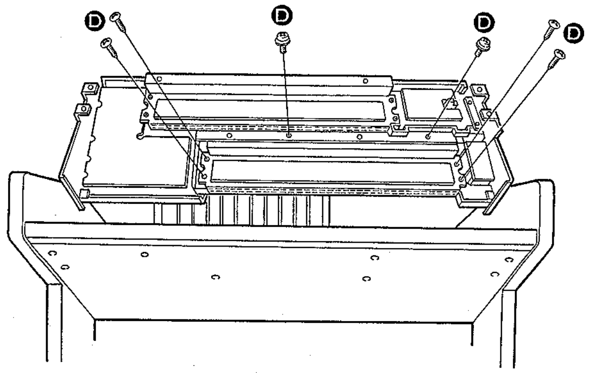
a) Open the control panel according to step 4.
b) Remove the 8 screws Ⓒ on the bottom of the self-board.
c) Then the keyboard & end cover unit can be opened upwards.



[Fig.-8]

6. **Upper Keyboard** (Fig.-9)

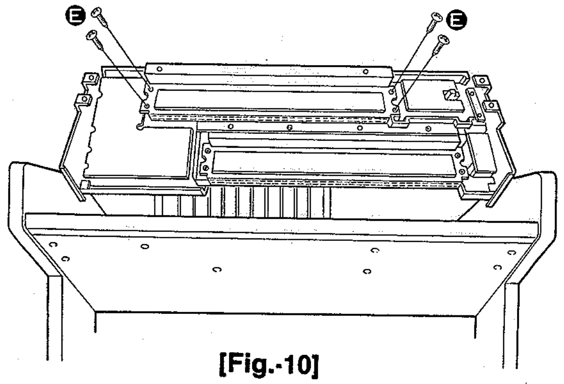
a) Open the keyboard & end cover unit according to step 5.
b) Remove the 6 screws Ⓓ which fasten the upper keyboard chassis.
c) Then the upper keyboard can be removed.



[Fig.-9]

7. **Lower Keyboard** (Fig.-10)

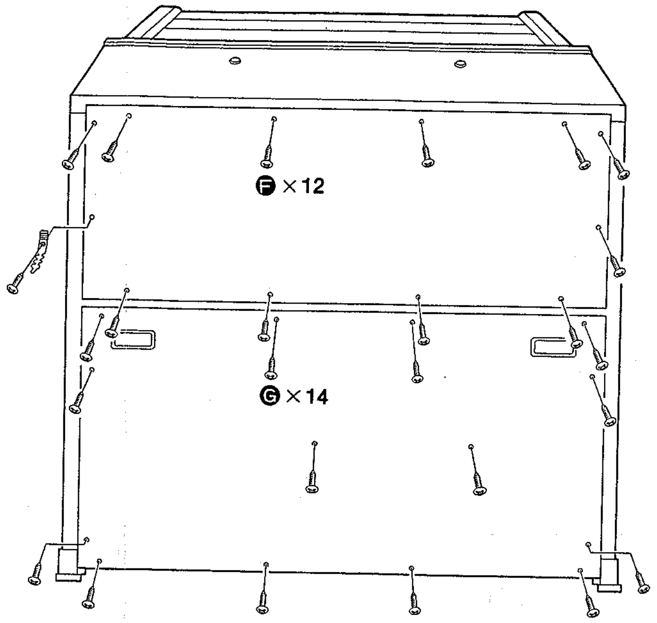
a) Open the keyboard & end cover unit according to step 5.
b) Remove the 4 screws Ⓔ which fasten the lower keyboard chassis.
c) Then the lower keyboard can be removed.



[Fig.-10]

8. **Rear Board** (Fig.-11)

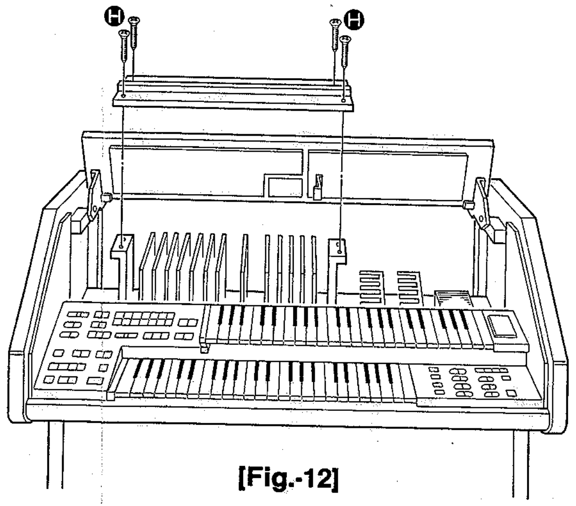
a) Upper cabinet section
Remove the 12 screws Ⓕ on the rear board.
b) Lower cabinet section
Remove the 14 screws Ⓖ on the rear board.



[Fig.-11]

9. **Printed Circuit Board (Mother Board Block)** (Fig.-12)

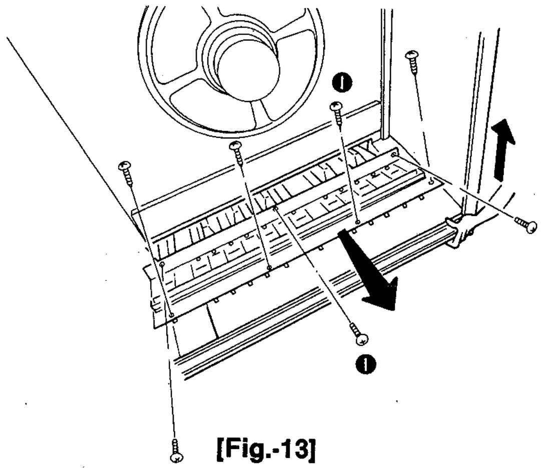
a) Open the control panel according to step 4.
b) Remove the 4 screws Ⓗ on the printed circuit board retainer plate.
c) Each printed circuit board can be removed from the connector of the mother board.



[Fig.-12]

10. **Pedal Keyboard** (Fig.-13)

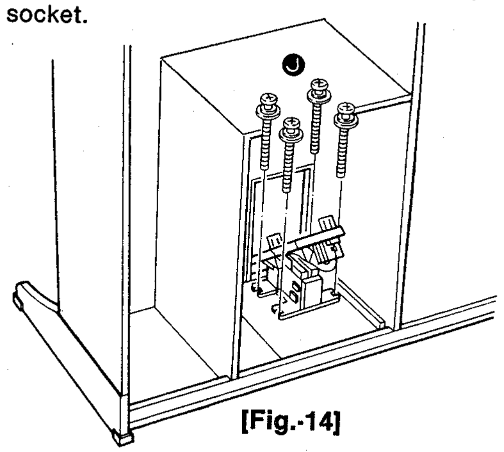
a) Remove the rear board of the lower cabinet.
b) Remove the 7 screws Ⓘ which fasten the pedal keyboard chassis.
c) Lift the cabinet body, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig.-13]

11. **Expression Unit** (Fig.-14)

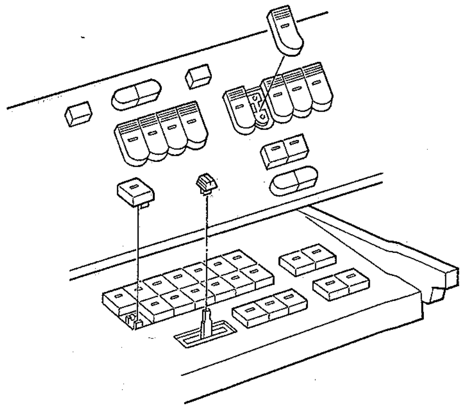
a) Remove the rear board of the lower cabinet.
b) Remove the 4 screws Ⓙ which fasten the expression unit.
c) The expression unit can be removed.
d) When replacing the expression lamp, remove the lamp retainer rubber and detach the lamp from the socket.



[Fig.-14]

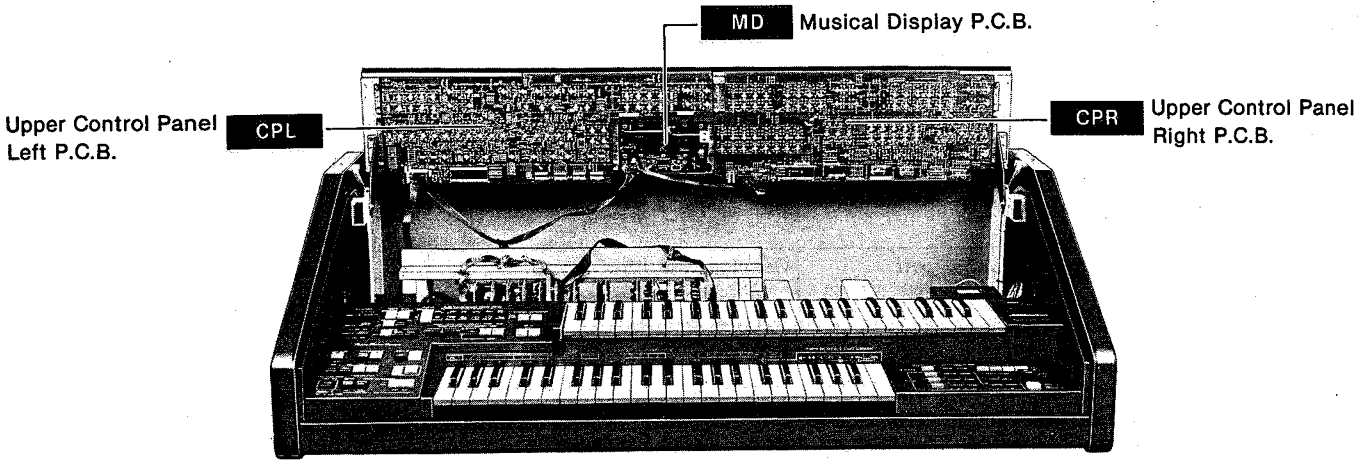
12. **Buttons and Knobs** (Fig.-15)

a) All buttons and knobs can be pulled out.

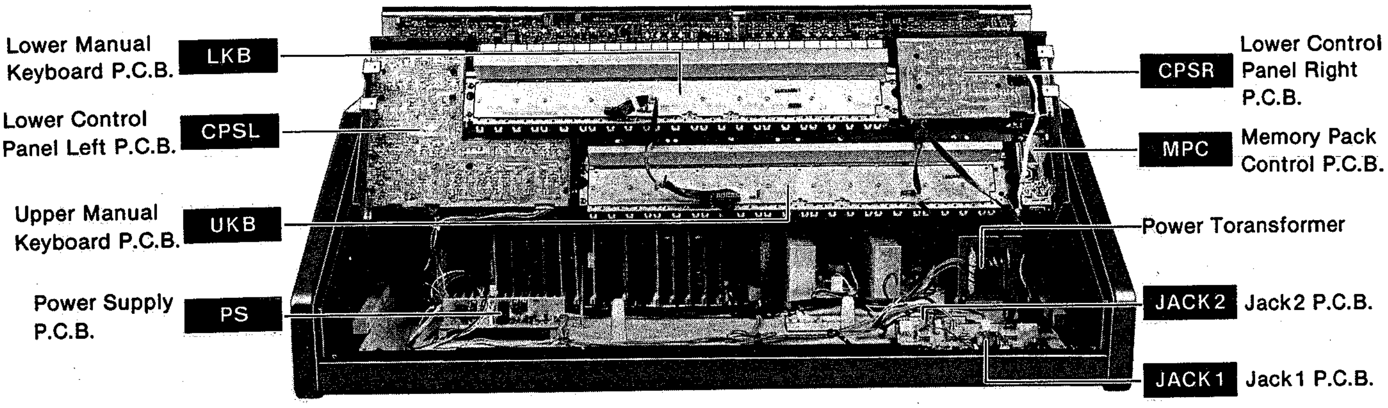


[Fig.-15]

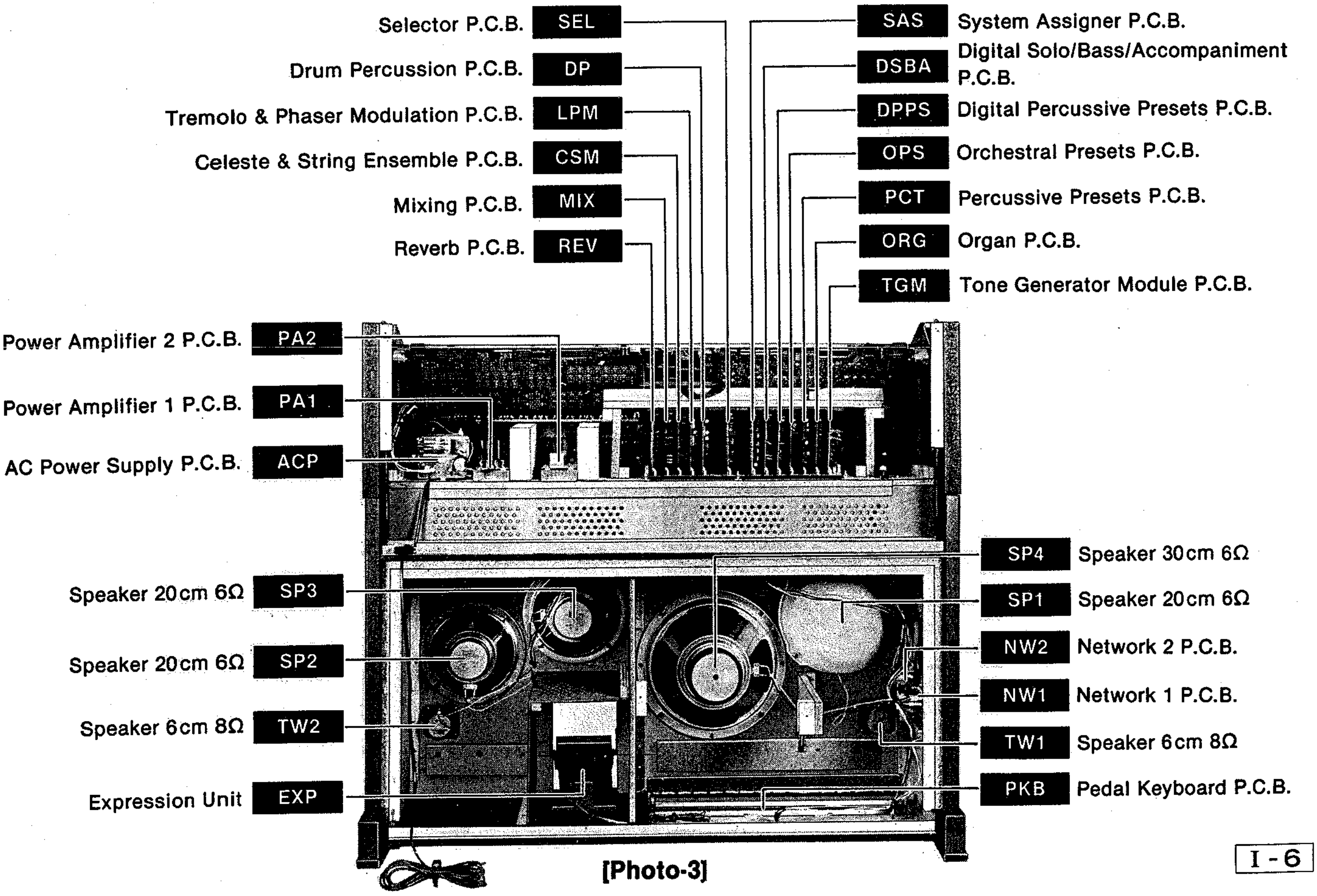
PRINTED CIRCUIT BOARDS LOCATION


MD Musical Display P.C.B.
Upper Control Panel Left P.C.B. CPL
CPR Upper Control Panel Right P.C.B.

[Photo-1]

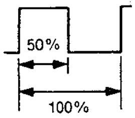
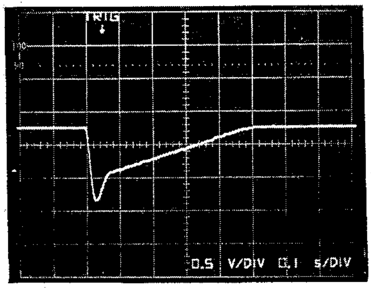
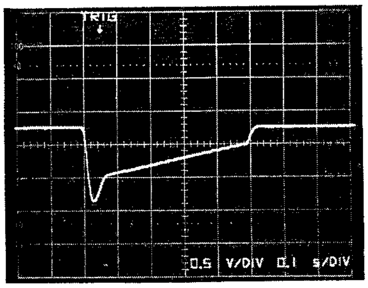
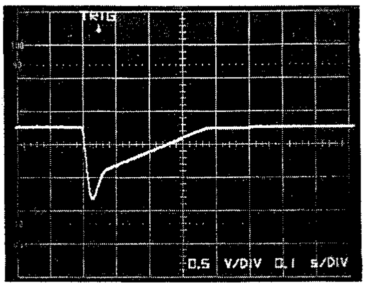
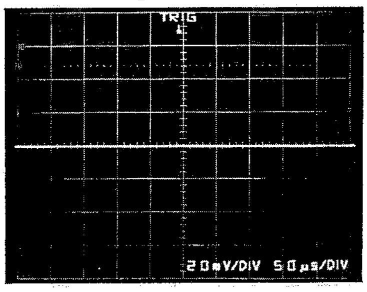
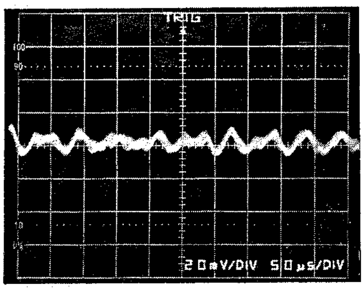

Lower Manual Keyboard P.C.B. LKB
Lower Control Panel Left P.C.B. CPSL
Upper Manual Keyboard P.C.B. UKB
Power Supply P.C.B. PS
CPSR Lower Control Panel Right P.C.B.
MPC Memory Pack Control P.C.B.
Power Toransformer
JACK2 Jack2 P.C.B.
JACK1 Jack1 P.C.B.

[Photo-2]


Selector P.C.B. SEL
Drum Percussion P.C.B. DP
Tremolo & Phaser Modulation P.C.B. LPM
Celeste & String Ensemble P.C.B. CSM
Mixing P.C.B. MIX
Reverb P.C.B. REV
SAS System Assigner P.C.B.
DSBA Digital Solo/Bass/Accompaniment P.C.B.
DPPS Digital Percussive Presets P.C.B.
OPS Orchestral Presets P.C.B.
PCT Percussive Presets P.C.B.
ORG Organ P.C.B.
TGM Tone Generator Module P.C.B.
Power Amplifier 2 P.C.B. PA2
Power Amplifier 1 P.C.B. PA1
AC Power Supply P.C.B. ACP
Speaker 20cm 6Ω SP3
Speaker 20cm 6Ω SP2
Speaker 6cm 8Ω TW2
Expression Unit EXP
SP4 Speaker 30cm 6Ω
SP1 Speaker 20cm 6Ω
NW2 Network 2 P.C.B.
NW1 Network 1 P.C.B.
TW1 Speaker 6cm 8Ω
PKB Pedal Keyboard P.C.B.

[Photo-3]

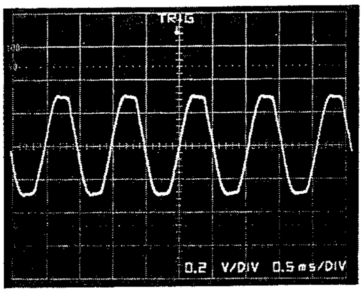
MEASUREMENTS AND ADJUSTMENTS

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Tuning (Tab)	tuning (free set).............off	Oscilloscope	SAS P.C.B.	VR1	check point ⑬	
	Connect the oscilloscope to check point ⑬ of system assigner P.C.B. and adjust VR1 so that the duty ratio of output waveform is 50%.					
Tuning (mono-tone)	tuning (free set).............off	Oscilloscope	SAS P.C.B.	VR2	check point ⑭	
	Connect the oscilloscope to check point ⑭ of system assigner P.C.B. and adjust VR2 so that the duty ratio of output waveform is 50%.					
Orchestral presets envelope	orchestral presets.........wah brass upper keyboard C4	Oscilloscope	OPS P.C.B.	VR1	check point ⑱	Photo-4
	1. Connect the oscilloscope to check point ⑱ of orchestral presets P.C.B. 2. Adjust VR1 so that the envelope waveform of wah brass is as shown in photo-4 when C4 key of upper keyboard is turned ON.					
	○: Good  **[Photo-4]** ×: Fault  **[Photo-5]** ×: Fault  **[Photo-6]**					
Click level (orchestral conductor)	main volume ....max. expression pedal...........max.	—	SEL P.C.B.	VR1	Adjust to the minimum click sound by hearing.	
	Adjust VR1 of selector P.C.B. so that the click sound may be the minimum by hearing when the tab voices and percussive presets buttons of orchestral conductor are changed over. (Turn on the key to open the signal gate before this adjustment.)					
Click level (percussive presets)	any position (key...........OFF)	Oscilloscope	DPPS P.C.B.	VR1	check point ⑥	Photo-7
	1. Connect the oscilloscope to check point ⑥ of digital percussive presets P.C.B. 2. Adjust VR1 so that the noise waveforms on the oscilloscope are minimum level.					
	○: Good  **[Photo-7]** ×: Fault  **[Photo-8]**					

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Output level	u. tab voices..................flute 4′, 8′, 16′ u. tab volume.................max. main volume..................max. expression pedal...........max. upper keyboard.............C3, E3, G3 reverb volume................min. effector...........................off	Electric voltmeter	MIX P.C.B.	VR2	PA1 P.C.B. check point ❹	4.3Vrms
				VR3	PA2 P.C.B. check point ❸	2.0Vrms
	• Output level 2 1. Connect the electric voltmeter to check point ❹ of PA1 circuit board. 2. Adjust VR2 of mixing P.C.B. so that output level is 4.3Vrms when the C3, E3, G3 keys of upper keyboard are depressed. • Output level 3 1. Connect the electric voltmeter to check point ❸ of PA2 circuit board. 2. Adjust VR3 of mixing P.C.B. so that output level is 2.0Vrms when the C3, E3, G3 keys of upper keyboard are depressed.					
BBD bias (Tremolo)	any position	Oscilloscope and Oscillator	LPM P.C.B.	VR1	Check point ⓳	Photo-9
	1. Connect the oscilloscope to check point ⓳ of LPM circuit board. 2. Input 1kHz sine wave to IC2-③ pin by oscillator through capacitor of less than 0.1μF. Then, adjust the output level of oscillator until the sinwave on the oscilloscope is clipped. 3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.					
BBD bias (Celeste)	any position	Oscilloscope and Oscillator	CSM P.C.B.	VR1	Check point ⓰	Photo-9
	1. Connect the oscilloscope to check point ⓰ of CSM circuit board. 2. Input 1kHz sine wave to IC12-③ pin by oscillator through capacitor of less than 0.1μF. Then, adjust the output level of oscillator until the sinwave on the oscilloscope is clipped. 3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.					
BBD bias (String ensemble)	any position	Oscilloscope and Oscillator	CSM P.C.B.	VR2	Check point ㉕	Photo-9
	1. Connect the oscilloscope to check point ㉕ of CSM circuit board. 2. Input 1kHz sine wave to IC15-③ pin by oscillator through capacitor of less than 0.1μF. Then, adjust the output level of oscillator until the sinwave on the oscilloscope is clipped. 3. Adjust VR2 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.					

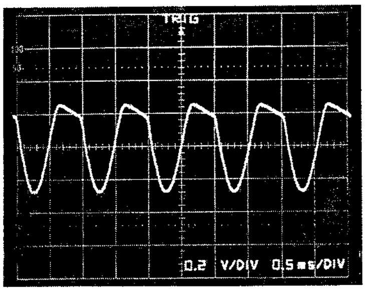
BBD bias adjustment

○: Good



[Photo-9]

×: Fault



[Photo-10]

PRECAUTIONS BEFORE SERVICING

- **Important safety notice:**
  Components identified by ⚠ mark have special characteristics for safety.
  When replacing any of these components, use only manufacturer's specified parts.
- **Measuring of output waveforms**
  1. The waveform was measured by "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of measure.
  2. The voltage shown in the photo is 1/10 of the actual value. However, the actual voltage is 10 times of as shown in this photo.
- Trouble often occur due to faulty operation of your electronic organ if you are not completely familiar with its mechanisms. Therefore, if your organ shows the following symptoms, please check the instrument before repair.

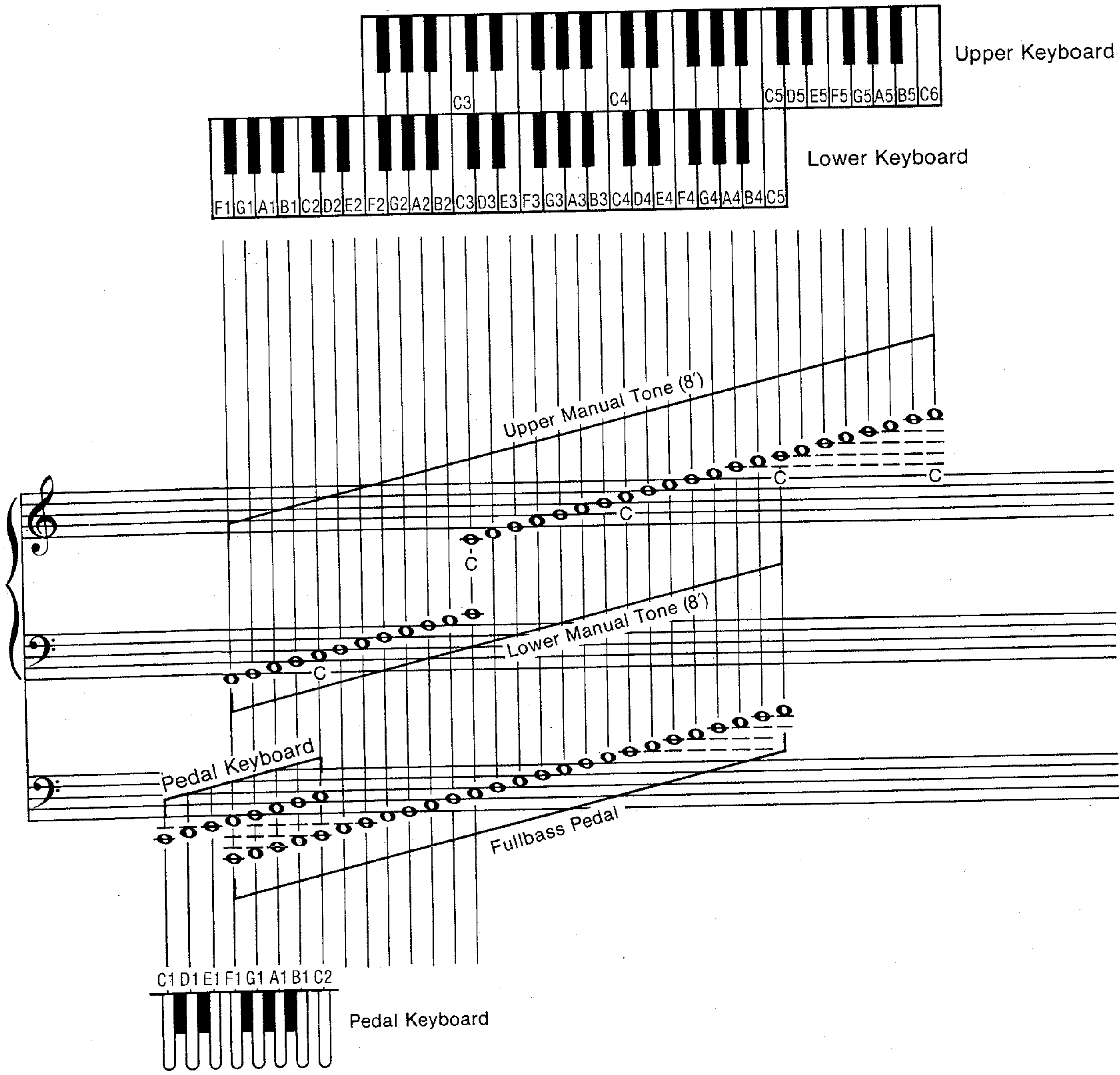
Phenomenon	Cause and remedy
The buttons, tablets, keyboards, etc. malfunction.	•Press the Fullband Setting Computer button first to turn it on and then press the initial key on the lower keyboard. •If the buttons, tablets, keyboards, etc. do not return to normal, turn the power switch off once, then turn on again.
Voices of flute tablets do not sound.	The flute volume levels are adjustable for each individual tablet. If set to 0, however, the voice of the tablet will not sound. Adjust the flute tablets to the desired levels.
Different voices are heard in the lower and upper half keys on the upper keyboard.	The lower portion of the upper manual keyboard is used to sound the lower manual voices when the lower manual keyboard is required for programming functions.
A rhythm does not start or no rhythm sounds.	•No rhythm sounds if the drum percussion on button is turned off. •If the PCC button has no stored chords, no rhythm will start when turned on. Press the cancel button. •If the Composer button has no stored rhythm patterns, no rhythm will sound. Select other rhythm buttons.
Rhythm tempo control remains inoperative.	When the tempo set button is turned on: •The tempo control does not operate if the fine button is turned off. •If the fine button is turned on, fine adjustment possible in the tempo control. Press the tempo set buttons I and II simultaneously to turn them off. This allows the rhythm tempo to be adjusted with the tempo control.
The knee lever, foot switches and full bass pedal do not operate properly. For example, the knee lever does not turn the sustain function on and off.	Any functional on and off operation other than the factory presets are storable in these switches. For example, the knee lever can turn the Techni-Chord on and off. Store your favorite functions to turn them on and off.
The fast multi-tremolo speed is improper.	The fast multi-tremolo speed is preadjustable. Adjust to your favorite speed.
The contents of the Program Chord Computer, Fullband Setting Computer, etc. can-not be stored.	After pressing the record button, press the necessary buttons within 5 seconds. The record button turns off after a lapse of 5 seconds, making storage operation impossible. Press the record button again.
When storing the created tones and effects in the Voice Setting Computer, voices other than those desired are stored.	•To store your created tones and effects, press the 1 to 7 buttons of the Voice Setting Computer while the set button is held down. •To select your favorite voice from the 20 factory-preset voices, press the record button and depress one of the 1 to 7 buttons on the Voice Setting Computer within 5 seconds. Then press the key corresponding to the preferred voice of the keys 1 to 20 on the lower keyboard. Finally press the selected 1 to 7 button again.

Phenomenon	Cause and remedy
Storage is not possible with the Program Chord Computer.	• Check that the PCC button is slowly flashing. Pressing the fingered button turns off the record button, making storage operation impossible. • Do not release the left hand (Chord designation) before pressing the measure keys (⊢⌒⊣, ⊢⌒+⊣, and ⊢++⊣).
When the rhythm stored in the Rhythm Composer is played, the Rhythmic Orchestra and automatic bass accompaniment do not sound.	• Store patterns in the rhythmic and melodic buttons of the Rhythmic Orchestra, just as you would with other rhythmic instrumental effects. • The bass of auto play chord sounds with a drum bass, which should be stored.
The stored registration cannot be used when performance is started with the Play Sequencer button turned on.	To use the stored registration, turn on the Fullband Setting Computer button and then press the 1 key on the lower keyboard.
The stored introduction is not reproduced during automatic performance.	• Set the beginning of a song, such as an introduction, before turning on the record button. • To add an introduction after the record button and Play Sequencer button flash, set it after turning on the Fullband Setting Computer button. Then turn off the Fullband Setting Computer button.
No storage is possible even when the record button and Play Sequencer button are slowly flashing.	• No storage is possible when the Fullband Setting Computer button is turned on. Turn it off before playing. • If any Play Sequencer button is lit, press the start/stop button for automatic performance of the stored part. Another part can then be stored.
The quick rhythm tempo is delayed when the Play Sequencer is used.	This occurs when too many tones are played at one time. Slow down the tempo (to about ♩ =250) or reduce the number of tones played at a time.
Different tones and effects are stored in the Fullband Setting Computer (FSC).	If the Voice Setting Computer (VSC) function is selected, the stored contents in this button are stored into the FSC. When the tones and effects selected by the VSC are changed, store them in the VSC again before storage in the FSC.
The cabinet and slide cover become heated to some degree.	The Technics organ has a built-in power source that heats the cabinet and slide cover to some degree. This is not an indication of trouble.
Nine or more keys of upper or lower keyboard are simultaneously depressed, only 8 keys make sound.	It is designed so that upper and lower keyboards can make sound only up to 8 keys when harmonic coupler is not provided. • Priority is given to 8 keys of higher-pitched sound.
Upper or lower keyboard makes sound only to 4 tones.	With harmonic coupler provided, each keyboard can simultaneously sound only up to 4 tones. • Priority is given to 4 keys of higher-pitched sound.
To octave sounds of flute 2′, $1^{1}/_{3}$′, 1′ are repeated.	The top octave C key of flute 2′, F∾C keys (8 keys) in the top octave part of flute $1^{1}/_{3}$′, and top octave keys (C∾C) of flute 1′ are designed to be repeated.

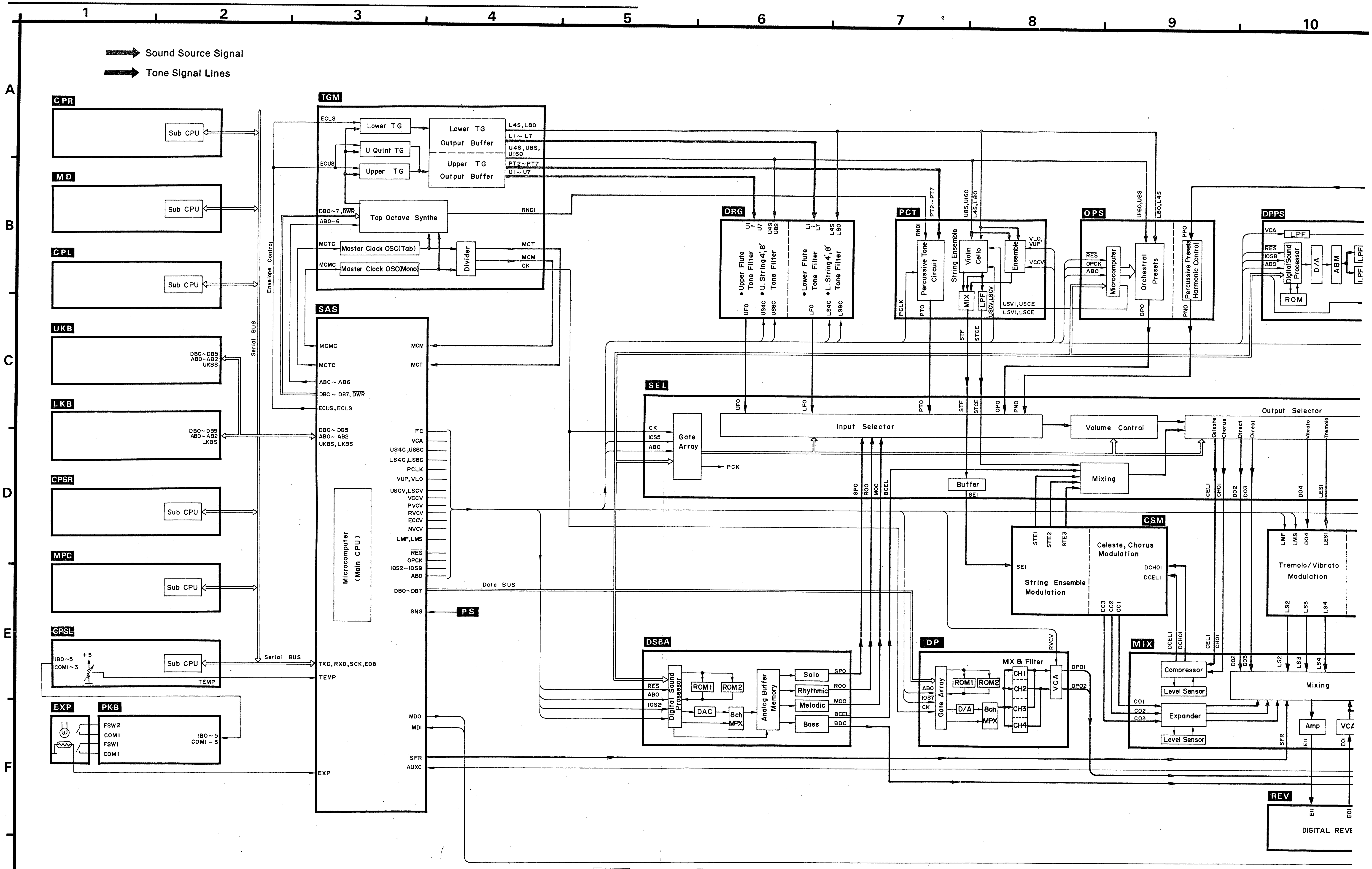
KEYBOARD RANGES

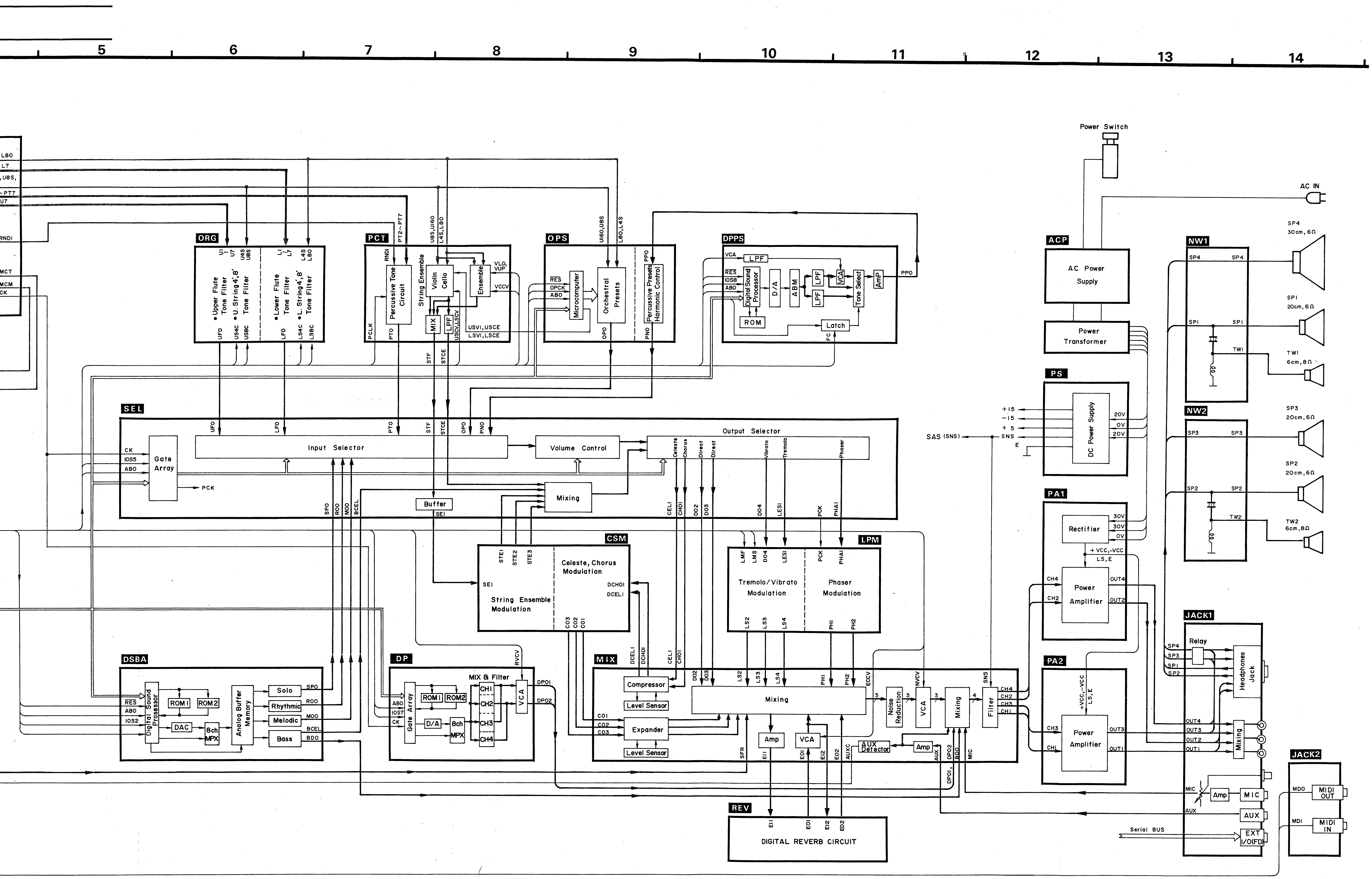
Upper Keyboard	44 Keys
Lower Keyboard	44 Keys
Pedal Keyboard	13 Keys
Fullbass Pedal	1 Key

* An 8-feet compass is used for each keyboard.


Upper Keyboard
C3
C4
C5 D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
Lower Manual Tone (8')
C
Pedal Keyboard
Fullbass Pedal
C1 D1 E1 F1 G1 A1 B1 C2
Pedal Keyboard

TOTAL BLOCK DIAGRAM


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
Sound Source Signal
Tone Signal Lines
CPR
Sub CPU
MD
Sub CPU
CPL
Sub CPU
UKB
DB0~DB5
AB0~AB2
UKBS
LKB
DB0~DB5
AB0~AB2
LKBS
CPSR
Sub CPU
MPC
Sub CPU
CPSL
IB0~5
COMI~3
+5
Sub CPU
TEMP
EXP
PKB
FSW2
COMI
FSWI
COMI
IB0~5
COMI~3
Envelope Control
Serial BUS
Serial BUS
TGM
ECLS
Lower TG
U.Quint TG
ECUS
Upper TG
Lower TG Output Buffer
Upper TG Output Buffer
L4S, L80
LI~L7
U4S, U8S, U160
PT2~PT7
UI~U7
DB0~7, DWR
AB0~6
Top Octave Synthe
RNDI
MCTC
Master Clock OSC(Tab)
MCMC
Master Clock OSC(Mono)
Divider
MCT
MCM
CK
SAS
MCMC
MCM
MCTC
MCT
AB0~AB6
DBC~DB7, DWR
ECUS, ECLS
DB0~DB5
AB0~AB2
UKBS, LKBS
FC
VCA
US4C, US8C
LS4C, LS8C
PCLK
VUP, VLO
USCV, LSCV
VCCV
PVCV
RVCV
ECCV
NVCV
LMF, LMS
RES
OPCK
IOS2~IOS9
AB0
Microcomputer (Main CPU)
DB0~DB7
Data BUS
SNS
PS
TXD, RXD, SCK, EOB
TEMP
MDO
MDI
SFR
AUXC
EXP
ORG
UI ~ U7
U4S U8S
LI ~ L7
L4S L80
• Upper Flute Tone Filter
• U. String 4', 8' Tone Filter
• Lower Flute Tone Filter
• L. String 4', 8' Tone Filter
UFO
US4C
US8C
LFO
LS4C
LS8C
PCT
RNDI
PT2~PT7
U8S, U160
L4S, L80
Percussive Tone Circuit
String Ensemble
Violin Cello
Ensemble
MIX
LPF
VLO, VUP
VCCV
USVI, USCE
LSVI, LSCE
USCV, LSCV
PCLK
PTO
STF
STCE
OPS
U160, U8S
L80, L4S
RES
OPCK
AB0
Microcomputer
Orchestral Presets
Percussive Presets Harmonic Control
PPO
OPO
PNO
DPPS
VCA
LPF
RES
IOS8
AB0
Digital Sound Processor
D/A
ABM
LPF
LPF
ROM
SEL
UFO
LFO
PTO
STF
STCE
OPO
PNO
CK
IOS5
AB0
Gate Array
PCK
Input Selector
Volume Control
Output Selector
Celeste
Chorus
Direct
Direct
Vibrato
Tremolo
Mixing
Buffer
SEI
SPO
ROO
MOO
BCEL
CELI
CHOI
DO2
DO3
DO4
LESI
CSM
STEI
STE2
STE3
Celeste, Chorus Modulation
SEI
DCHOI
DCELI
String Ensemble Modulation
CO3
CO2
COI
LMF
LMS
DO4
LESI
Tremolo/Vibrato Modulation
LS2
LS3
LS4
DSBA
RES
AB0
IOS2
Digital Sound Processor
ROM I
ROM 2
DAC
8ch MPX
Analog Buffer Memory
Solo
Rhythmic
Melodic
Bass
SPO
ROO
MOO
BCEL
BDO
DP
RVCV
AB0
IOS7
CK
Gate Array
ROMI
ROM2
D/A
8ch MPX
MIX & Filter
CH1
CH2
CH3
CH4
VCA
DPOI
DPO2
MIX
DCELI
DCHOI
CELI
CHOI
DO2
DO3
LS2
LS3
LS4
Compressor
Level Sensor
COI
CO2
CO3
Expander
Level Sensor
Mixing
Amp
VCA
SFR
EII
EOI
REV
EII
EOI
DIGITAL REVE


5
6
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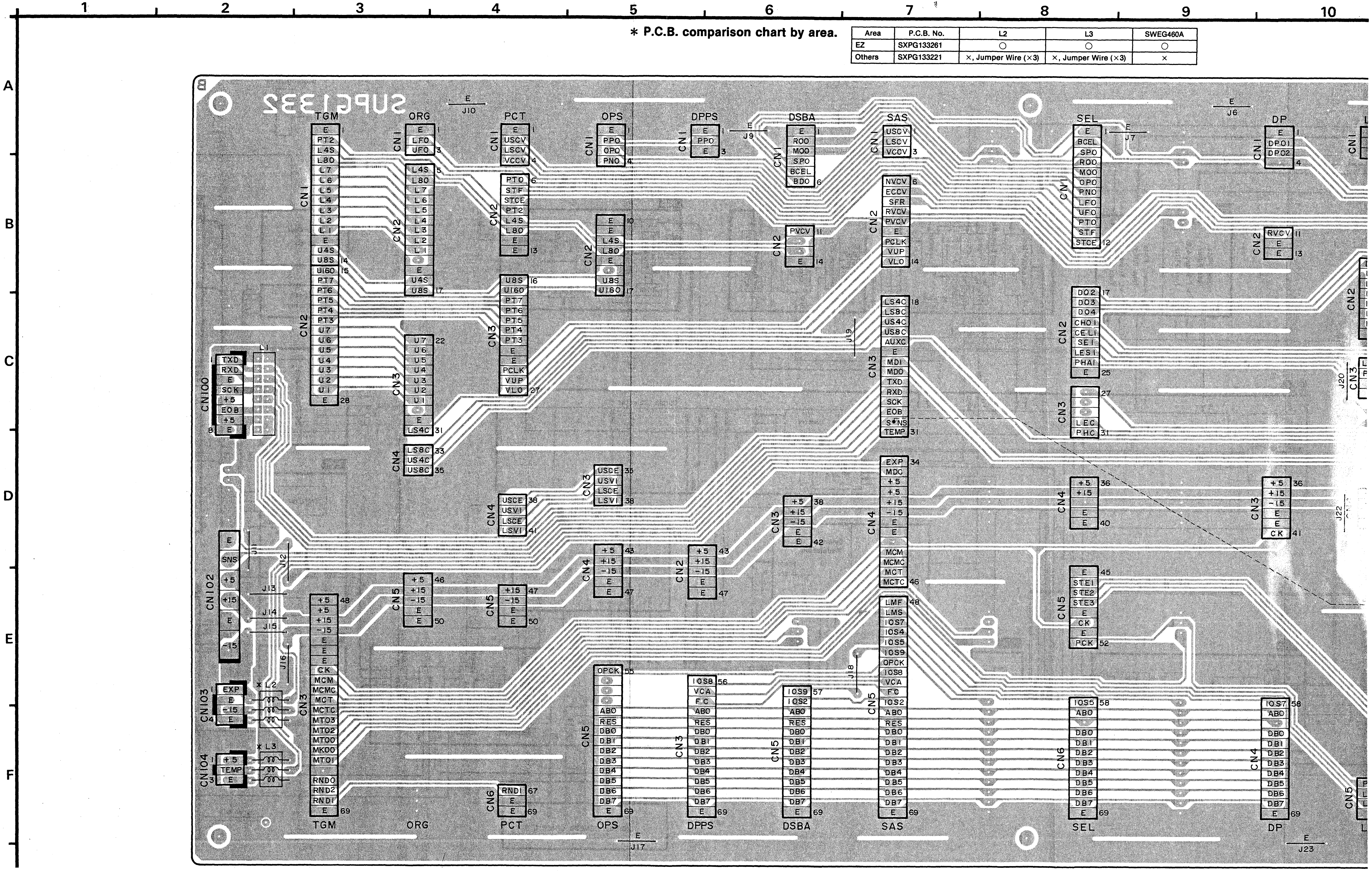
11
12
13
14
L80
L7
U8S,
~PT7
U7
RNDI
MCT
MCM
CK
ORG
U1~U7
U4S U8S
L1~L7
L4S L80
• Upper Flute Tone Filter
• U. String 4', 8' Tone Filter
• Lower Flute Tone Filter
• L. String 4', 8' Tone Filter
UFO
US4C
US8C
LFO
LS4C
LS8C
PCT
RNDI
PT2~PT7
U8S, U160
L4S, L80
Percussive Tone Circuit
String Ensemble
Violin Cello
Ensemble
MIX
LPF
VLO, VUP
VCCV
USVI, USCE
LSVI, LSCE
USCV, LSCV
PCLK
PTO
STF
STCE
OPS
U160, U8S
L80, L4S
RES
OPCK
ABO
Microcomputer
Orchestral Presets
Percussive Presets Harmonic Control
PPO
OPO
PNO
DPPS
VCA
LPF
RES
IOS6
ABO
Digital Sound Processor
D/A
ABM
LPF
LPF
VCA
Tone Select
AmP
PPO
ROM
Latch
FC
SEL
CK
IOS5
ABO
Gate Array
PCK
UFO
LFO
PTO
STF
STCE
OPO
PNO
Input Selector
Volume Control
Output Selector
Celeste
Chorus
Direct
Direct
Vibrato
Tremolo
Phaser
Mixing
Buffer
SEI
SPO
ROO
MOO
BCEL
CELI
CHOI
DO2
DO3
DO4
LESI
PCK
PHAI
CSM
STEI
STE2
STE3
SEI
String Ensemble Modulation
Celeste, Chorus Modulation
DCHOI
DCELI
CO3
CO2
COI
LPM
LMF
LMS
DO4
LESI
PCK
PHAI
Tremolo/Vibrato Modulation
Phaser Modulation
LS2
LS3
LS4
PHI
PH2
DSBA
RES
ABO
IOS2
Digital Sound Processor
ROM I
ROM 2
DAC
8ch MPX
Analog Buffer Memory
Solo
Rhythmic
Melodic
Bass
SPO
ROO
MOO
BCEL
BDO
DP
ABO
IOS7
CK
Gate Array
ROM I
ROM2
D/A
8ch MPX
MIX & Filter
CH1
CH2
CH3
CH4
VCA
RVCV
DPOI
DPO2
MIX
DCELI
DCHOI
CELI
CHOI
DO2
DO3
LS2
LS3
LS4
PHI
PH2
ECCV
NVCV
SNS
Compressor
Level Sensor
COI
CO2
CO3
Expander
Level Sensor
Mixing
Noise Reduction
VCA
Mixing
Filter
3
3
3
4
CH4
CH2
CH3
CHI
Amp
VCA
AUX Detector
Amp
SFR
EII
EOI
EI2
EO2
AUXC
AUX
DPOI, DPO2
BDO
MIC
REV
EII
EOI
EI2
EO2
DIGITAL REVERB CIRCUIT
Power Switch
AC IN
ACP
AC Power Supply
Power Transformer
PS
+15
−15
+5
SNS
E
SAS (SNS)
DC Power Supply
20V
0V
20V
PA1
Rectifier
30V
30V
0V
+VCC, −VCC
LS, E
CH4
CH2
Power Amplifier
OUT4
OUT2
PA2
+VCC, −VCC
LS, E
CH3
CHI
Power Amplifier
OUT3
OUTI
NW1
SP4
SP4
SPI
SPI
TWI
NW2
SP3
SP3
SP2
SP2
TW2
SP4 30cm, 6Ω
SPI 20cm, 6Ω
TWI 6cm, 8Ω
SP3 20cm, 6Ω
SP2 20cm, 6Ω
TW2 6cm, 8Ω
JACK1
Relay
SP4
SP3
SPI
SP2
Headphones Jack
OUT4
OUT3
OUT2
OUTI
Mixing
MIC
Amp
MIC
AUX
AUX
EXT I/O(FD)
Serial BUS
JACK2
MDO
MIDI OUT
MDI
MIDI IN

MB MOTHER CIRCUIT BOARD

* **P.C.B. comparison chart by area.**

Area	P.C.B. No.	L2	L3	SWEG460A
EZ	SXPG133261	○	○	○
Others	SXPG133221	×, Jumper Wire (×3)	×, Jumper Wire (×3)	×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A
B
C
D
E
F
SUPG1332
TGM
ORG
PCT
OPS
DPPS
DSBA
SAS
SEL
DP
CN1
CN2
CN3
CN4
CN5
CN6
CN100
CN102
CN103
CN104
E J10
E J9
E J7
E J6
E J17
E J23
J11
J12
J13
J14
J15
J16
J18
J19
J20
J22
L1
× L2
× L3
E PT2 L4S L8O L7 L6 L5 L4 L3 L2 L1 E U4S U8S U16O PT7 PT6 PT5 PT4 PT3 U7 U6 U5 U4 U3 U2 U1 E
+5 +5 +15 -15 E E E CK MCM MCMC MCT MCTC MT03 MT02 MT00 MK00 MT01 RND0 RND2 RND1 E
E LFO UFO
L4S L8O L7 L6 L5 L4 L3 L2 L1 E U4S U8S
U7 U6 U5 U4 U3 U2 U1 E LS4C
LS8C US4C US8C
+5 +15 -15 E E
E USCV LSCV VCCV
PTO STF STCE PT2 L4S L8O E E
U8S U16O PT7 PT6 PT5 PT4 PT3 E E PCLK VUP VLO
USCE USVI LSCE LSVI
+15 -15 E E
RND1 E E
E PPO OPO PNO
E E L4S L8O E E U8S U16O
USCE USVI LSCE LSVI
+5 +15 -15 E E
OPCK ABO RES DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
E PPO E
+5 +15 -15 E E
IOS8 VCA FC ABO RES DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
E ROO MOO SPO BCEL BDO
PVCV E
+5 +15 -15 E E
IOS9 IOS2 ABO RES DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
USCV LSCV VCCV
NVCV ECCV SFR RVCV PVCV E PCLK VUP VLO
LS4C LS8C US4C US8C AUXC E MDI MDO TXD RXD SCK EOB SENS TEMP
EXP MDC +5 +5 +15 -15 E E MCM MCMC MCT MCTC
LMF LMS IOS7 IOS4 IOS5 IOS9 OPCK IOS8 VCA FC IOS2 ABO RES DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
E BCEL SPO ROO MOO OPO PNO LFO UFO PTO STF STCE
DO2 DO3 DO4 CHO1 CELI SEI LESI PHAI E
LEC PHC
+5 +15 E E
E STE1 STE2 STE3 E CK E PCK
IOS5 ABO DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
E DPO1 DPO2
RVCV E E
+5 +15 -15 E E CK
IOS7 ABO DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
TXD RXD E SCK +5 EOB +5 E
E SNS +5 +15 E -15
EXP E -15 E
+5 TEMP E

II-4

II-5

II-6

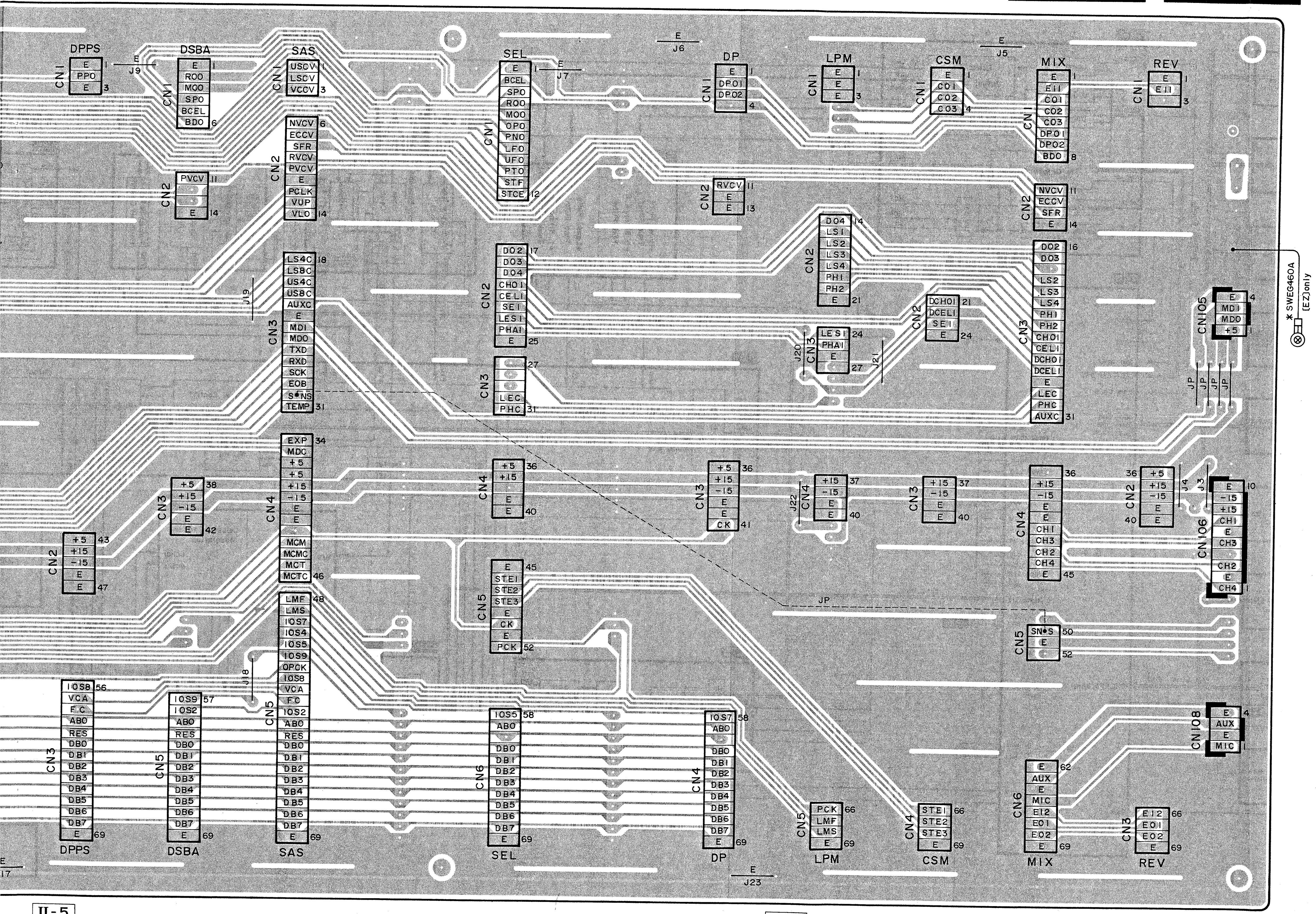
5 6 7 8 9 10 11 12 13 14

∗ P.C.B. comparison chart by area.

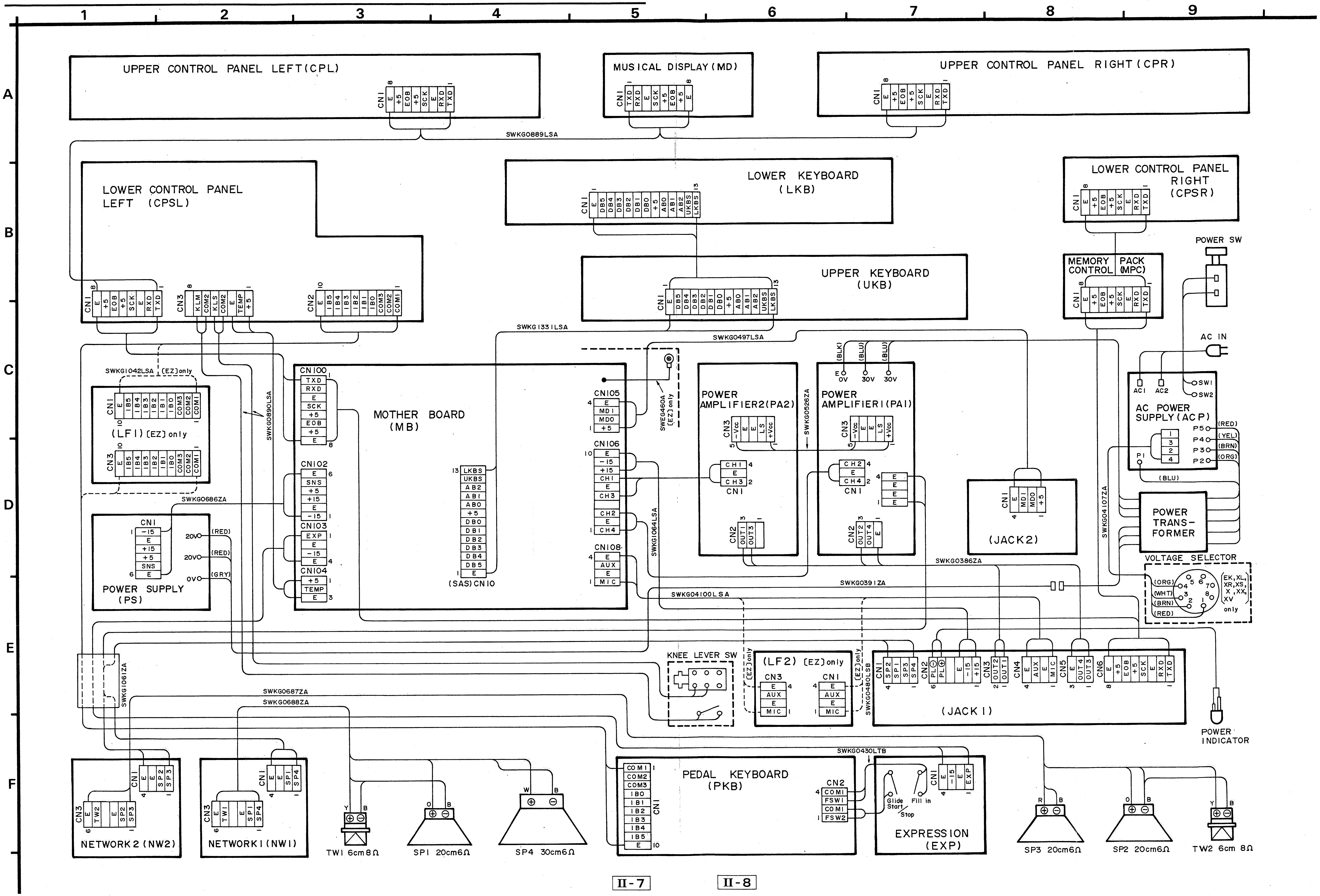
Area	P.C.B. No.	L2	L3	SWEG460A
EZ	SXPG133261	○	○	○
Others	SXPG133221	×, Jumper Wire (×3)	×, Jumper Wire (×3)	×

∗ Products for [EZ]
SXPG133261

∗ Other areas
SXPG133221


DPPS CN1 E PPO E 1 3
E J9
DSBA CN1 E ROO MOO SPO BCEL BDO 1 6
CN2 PVCV E 11 14
SAS CN1 USCV LSCV VCCV 1 3
CN2 NVCV ECCV SFR RVCV PVCV E PCLK VUP VLO 6 14
CN3 LS4C LS8C US4C US8C AUXC E MDI MDO TXD RXD SCK EOB SENS TEMP 18 31
J19
CN4 EXP MDC +5 +5 +15 -15 E E MCM MCMC MCT MCTC 34 46
CN5 LMF LMS IOS7 IOS4 IOS5 IOS9 OPCK IOS8 VCA FC IOS2 ABO RES DBO DB1 DB2 DB3 DB4 DB5 DB6 DB7 E 48 69
J18
SEL CN1 E BCEL SPO ROO MOO OPO PNO LFO UFO PTO STF STCE 1 12
E J7
CN2 DO2 DO3 DO4 CHO1 CEL1 SE1 LES1 PHA1 E 17 25
CN3 LEC PHC 27 31
CN4 +5 +15 E E 36 40
CN5 E STE1 STE2 STE3 E CK E PCK 45 52
CN6 IOS5 ABO DBO DB1 DB2 DB3 DB4 DB5 DB6 DB7 E 58 69
E J6
DP CN1 E DPO1 DPO2 1 4
CN2 RVCV E E 11 13
CN3 +5 +15 -15 E E CK 36 41
CN4 IOS7 ABO DBO DB1 DB2 DB3 DB4 DB5 DB6 DB7 E 58 69
E J23
LPM CN1 E E E 1 3
CN2 DO4 LS1 LS2 LS3 LS4 PH1 PH2 E 14 21
CN3 LES1 PHA1 E 24 27
J20 J21
CN4 +15 -15 E E 37 40
J22
CN5 PCK LMF LMS E 66 69
CSM CN1 E CO1 CO2 CO3 1 4
CN2 DCHO1 DCEL1 SE1 E 21 24
CN3 +15 -15 E E 37 40
CN4 STE1 STE2 STE3 E 66 69
E J5
MIX CN1 E E11 CO1 CO2 CO3 DPO1 DPO2 BDO 1 8
CN2 NVCV ECCV SFR E 11 14
CN3 DO2 DO3 LS2 LS3 LS4 PH1 PH2 CHO1 CEL1 DCHO1 DCEL1 E LEC PHC AUXC 16 31
CN4 +15 -15 E E CH1 CH3 CH2 CH4 E 36 45
CN5 SENS E 50 52
CN6 E AUX E MIC E12 EO1 EO2 E 62 69
JP
REV CN1 E E11 1 3
CN2 +5 +15 -15 E E 36 40
CN3 E12 EO1 EO2 E 66 69
J4 J3
CN105 E MDI MDO +5 4 1
JP JP JP JP
∗ SWEG460A [EZ]only
CN106 E -15 +15 CH1 E CH3 CH2 E CH4 10 1
CN108 E AUX E MIC 4 1
CN3 +5 +15 -15 E E 38 42
CN2 +5 +15 -15 E E 43 47
CN3 IOS8 VCA FC ABO RES DBO DB1 DB2 DB3 DB4 DB5 DB6 DB7 E 56 69 DPPS
CN5 IOS9 IOS2 ABO RES DBO DB1 DB2 DB3 DB4 DB5 DB6 DB7 E 57 69 DSBA
SAS SEL DP LPM CSM MIX REV
E J17

WIRING CONNECTION DIAGRAM

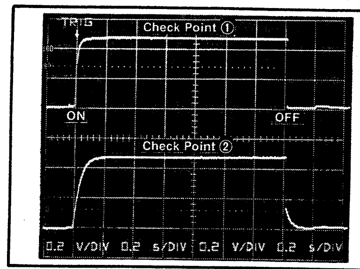

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
UPPER CONTROL PANEL LEFT (CPL)
CN1 E +5 EOB +5 SCK E RXD TXD
MUSICAL DISPLAY (MD)
CN1 TXD RXD E SCK +5 EOB +5 E
UPPER CONTROL PANEL RIGHT (CPR)
CN1 E +5 EOB +5 SCK E RXD TXD
SWKG0889LSA
LOWER CONTROL PANEL LEFT (CPSL)
CN1 E +5 EOB +5 SCK E RXD TXD
CN3 KLM COM2 KLS COM2 E TEMP +5
CN2 E IB5 IB4 IB3 IB2 IB1 IB0 COM3 COM2 COM1
LOWER KEYBOARD (LKB)
CN1 E DB5 DB4 DB3 DB2 DB1 DB0 +5 AB0 AB1 AB2 UKBS LKBS
UPPER KEYBOARD (UKB)
CN1 E DB5 DB4 DB3 DB2 DB1 DB0 +5 AB0 AB1 AB2 UKBS LKBS
LOWER CONTROL PANEL RIGHT (CPSR)
CN1 E +5 EOB +5 SCK E RXD TXD
MEMORY CONTROL PACK (MPC)
CN1 E +5 EOB +5 SCK E RXD TXD
POWER SW
AC IN
SWKG1331LSA
SWKG0497LSA
SWKG1042LSA [EZ] only
(LF1) [EZ] only
CN1 E IB5 IB4 IB3 IB2 IB1 IB0 COM3 COM2 COM1
CN3 E IB5 IB4 IB3 IB2 IB1 IB0 COM3 COM2 COM1
SWKG0890LSA
MOTHER BOARD (MB)
CN100 TXD RXD E SCK +5 EOB +5 E
CN102 E SNS +5 +15 E -15
CN103 EXP E -15 E
CN104 +5 TEMP E
LKBS UKBS AB2 AB1 AB0 +5 DB0 DB1 DB2 DB3 DB4 DB5 E
(SAS) CN10
CN105 E MD1 MD0 +5
CN106 E -15 +15 CH1 E CH3 CH2 E CH4
CN108 E AUX E MIC
SWEG460A [EZ] only
SWKG1064LSA
SWKG0686ZA
POWER SUPPLY (PS)
CN1 -15 E +15 +5 SNS E
20V (RED)
20V (RED)
0V (GRY)
POWER AMPLIFIER2 (PA2)
CN3 -Vcc E E LS +Vcc
CH1 E CH3 CN1
CN2 OUT1 OUT3
SWKG0526ZA
(BLK) (BLU) (BLU)
E 0V 30V 30V
POWER AMPLIFIER1 (PA1)
CN3 -Vcc E E LS +Vcc
CH2 E CH4 CN1
E E E E
CN2 OUT2 OUT4 E
(JACK2)
CN1 E MD1 MD0 +5
AC1 AC2
SW1 SW2
AC POWER SUPPLY (ACP)
P1
1 3 2 4
P5 (RED)
P4 (YEL)
P3 (BRN)
P2 (ORG)
(BLU)
SWKG0410ZA
POWER TRANS-FORMER
VOLTAGE SELECTOR
(ORG) (WHT) (BRN) (RED)
EK, XL, XR, XS, X, XX, XV only
SWKG0386ZA
SWKG0391ZA
SWKG0410LSA
SWKG1061ZA
KNEE LEVER SW
[EZ] only
(LF2) [EZ] only
CN3 E AUX E MIC
CN1 E AUX E MIC
[EZ] only
SWKG0480LSB
(JACK1)
CN1 SP2 SP1 SP3 SP4
CN2 PL⊖ PL⊕ E -15 +15
CN3 OUT2 OUT1
CN4 AUX E MIC
CN5 E OUT4 OUT3
CN6 E +5 EOB +5 SCK E RXD TXD
POWER INDICATOR
SWKG0687ZA
SWKG0688ZA
SWKG0430LTB
NETWORK2 (NW2)
CN1 E E SP2 SP3
CN3 E TW2 E SP2 SP3
NETWORK1 (NW1)
CN1 E E SP1 SP4
CN3 E TW1 E SP1 SP4
Y B
TW1 6cm8Ω
O B
SP1 20cm6Ω
W B
SP4 30cm6Ω
PEDAL KEYBOARD (PKB)
CN1 COM1 COM2 COM3 IB0 IB1 IB2 IB3 IB4 IB5 E
CN2 COM1 FSW1 COM1 FSW2
EXPRESSION (EXP)
CN1 E -15 E EXP
Glide Start Stop
Fill in
R B
SP3 20cm6Ω
O B
SP2 20cm6Ω
Y B
TW2 6cm 8Ω

SAS SYSTEM ASSIGNER CIRCUIT BOARD

1 2 3 4 5 6 7 8 9

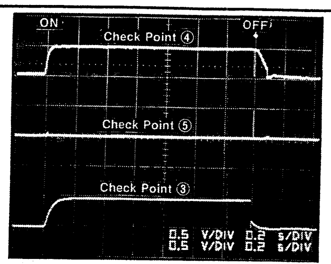
A B C D E F

❶, ❷



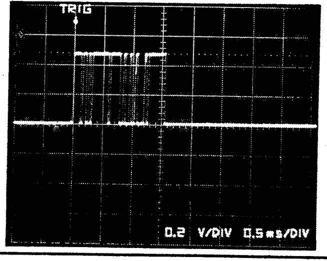
- Power SW..........................ON-OFF

❸, ❹, ❺



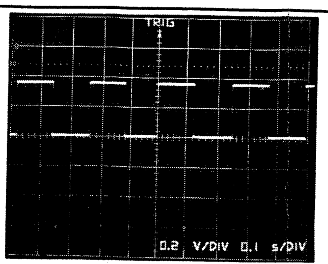
- Power SW..........................ON-OFF

❻

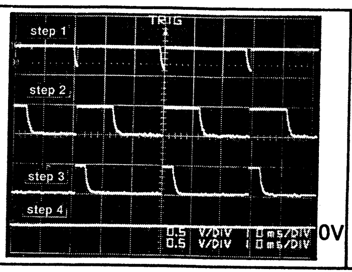


- Upper Tab Voices..............Flute 8'
- Upper Key..........................ON

❼

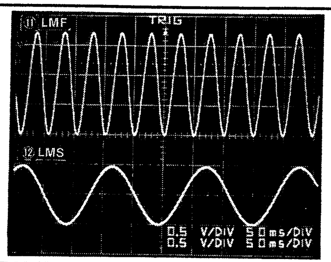


❾ ECLS, ❿ ECUS



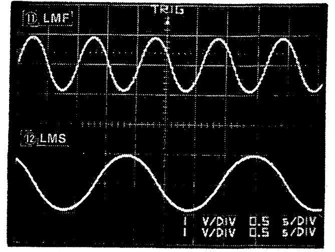
- Upper & Lower Sustain Control
- Step 1 (short)~Step 4 (long)

⓫ LMF, ⓬ LMS



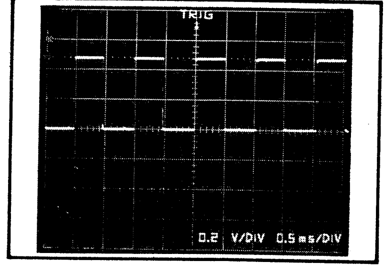
- Multi-tremolo ....ON
- Slow/Fast ....Fast

⓫ LMF, ⓬ LMS

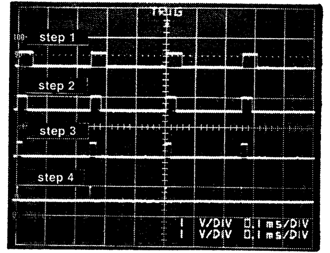


- Multi-tremolo ....ON
- Slow/Fast ....Slow

⓭, ⓮ Master Clock Control

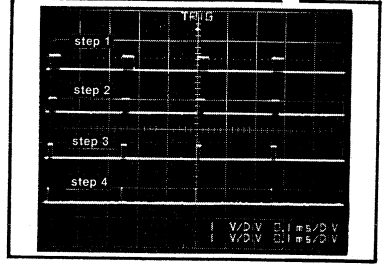


⓯ Main Vol., EXP Control



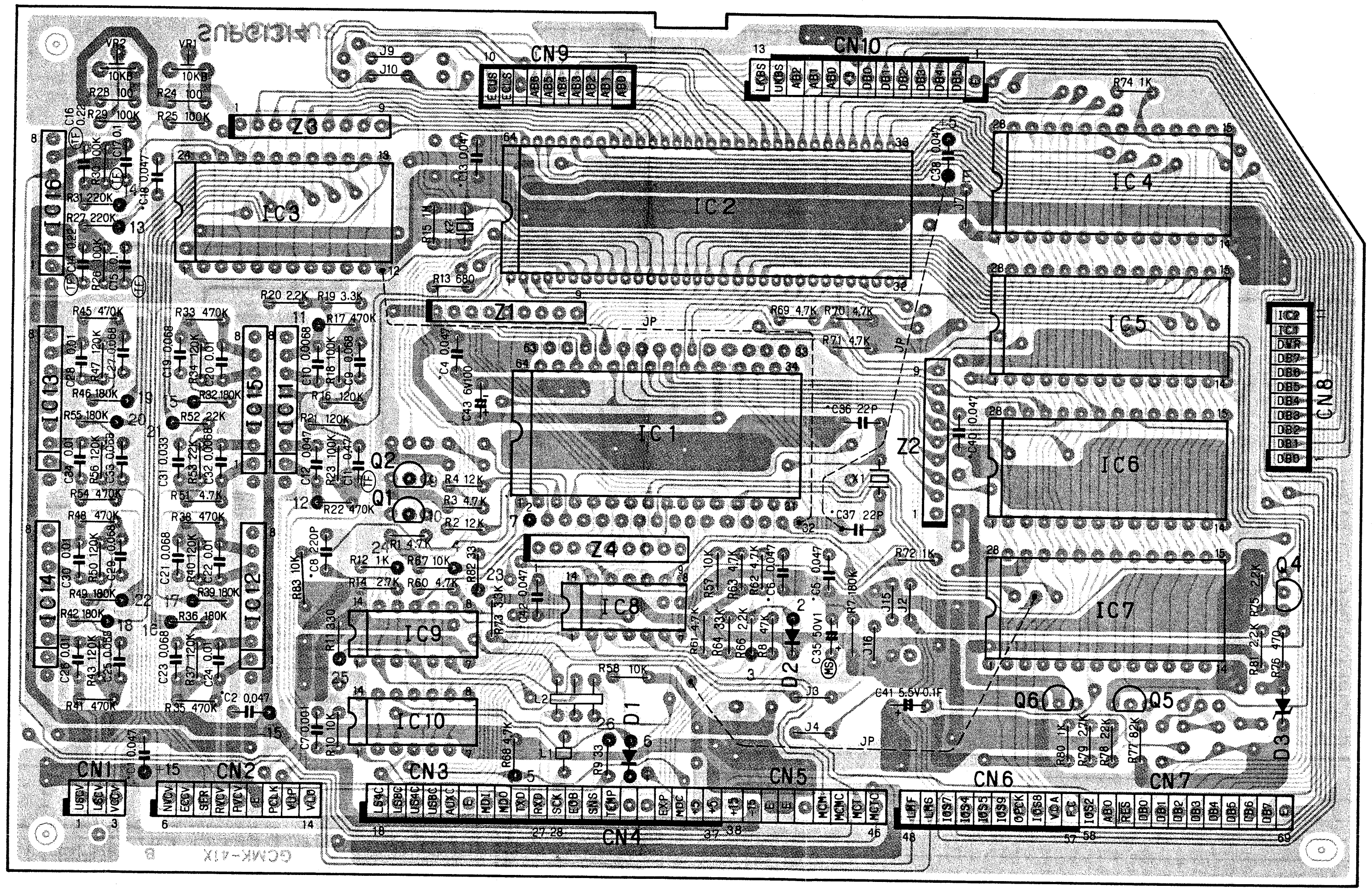
- EXP Pedal...........................Max.
- Main Vol. ....step 1 (min)~
  step 4 (max)
- Upper Key...........................ON

⓰ Bass Volume Control



- Main Vol., EXP...................Max.
- Bass...8' • Bass Key...ON
- Bass Vol..............................step 1~4

Circuit view on top of P.C.B

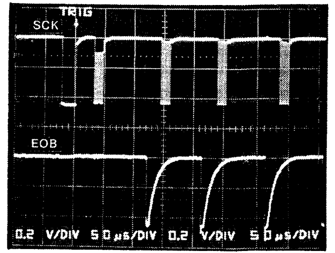

CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
Z1
Z2
Z3
Z4
Q1
Q2
Q4
Q5
Q6
D1
D2
D3
VR1
VR2
JP
GCMK-41X

SXPG131431

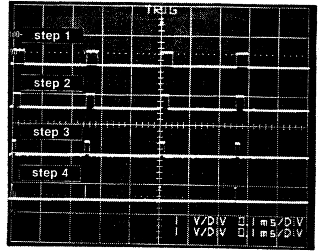
NOTES:

- IC'S
  - IC1: SVIG7810H
  - IC2: SVIGM6050211
  - IC3: SVIG65002017
  - IC4: SVIG02EX70-A
  - IC5: SVIG02EX70-B
  - IC6: SVIGD446415L
  - IC7: SVIG01EX70-C
  - IC8: SVIGM74LS03
  - IC9: SVIGM53216
  - IC10: SVIGTC74HC04
  - IC11~16: SVIGM5218L
- TRANSISTORS
  - Q1, 2, 6: 2SA933STRS
  - Q4: 2SC1047C
  - Q5: 2SC2320LFG
- DIODES
  - D1, 2: MA165TA5
  - D3: MA4036H

㉕ SCK, ㉖ EOB

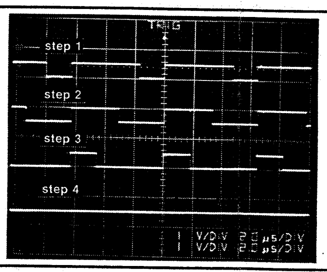


⓱ Rhythm Volume Control



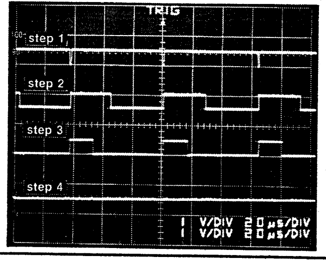
- Main Vol., EXP...................Max.
- Rhythm ....start
- Rhythm Vol. ....step 1~4

⓲, ㉒ U & L String Ensemble Volume Control



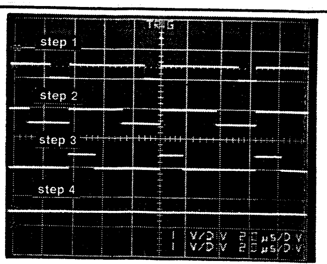
- U/L String Ensemble..........ON
- Upper/Lower Key................ON
- Volume................................step 1~4

⓳ Reverb Volume Control



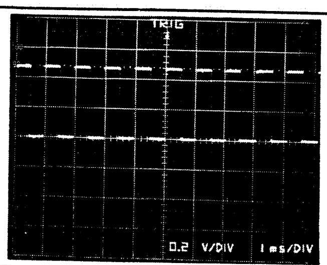
- Reverb Volume ....step 1~4

⓴ Vocal Ensemble Volume Control



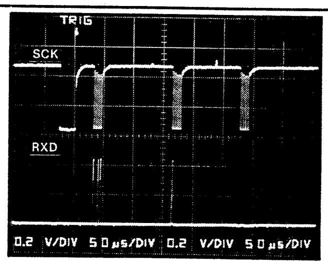
- U. Vocal Ensemble............ON
- Upper Key..........................ON
- Volume...............................step 1~4

㉑ Record Signal

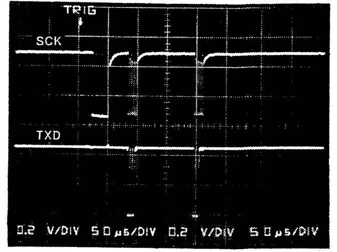


- Record SW ....ON
- Rhythm Sequencer............ON
- LKB C3

㉕ SCK, ㉓ RXD

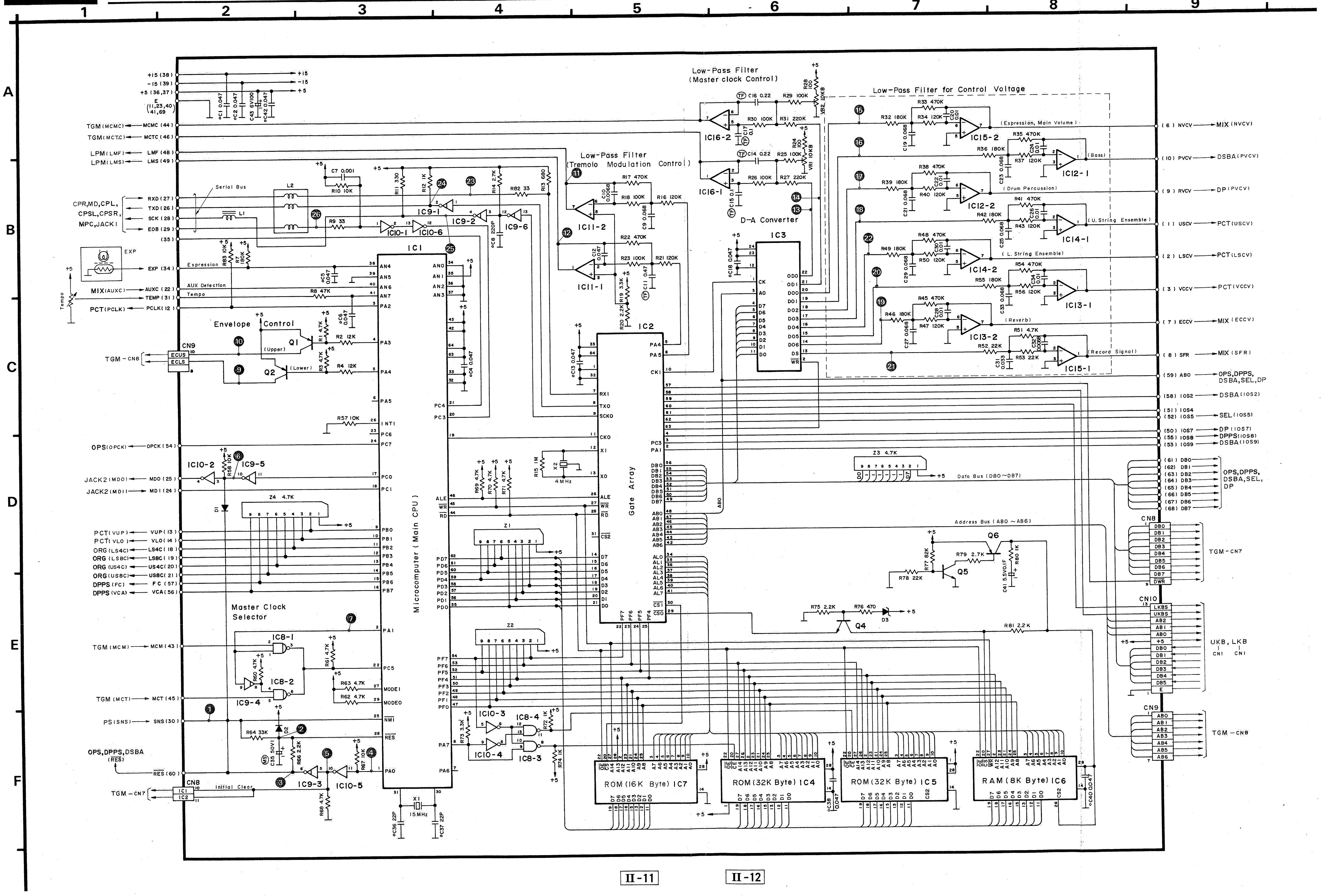


㉕ SCK, ㉔ TXD



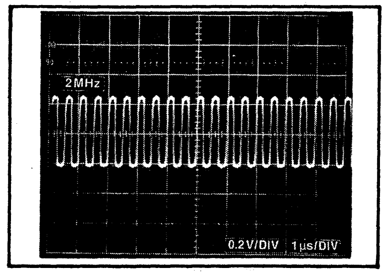
SAS

SYSTEM ASSIGNER CIRCUIT DIAGRAM

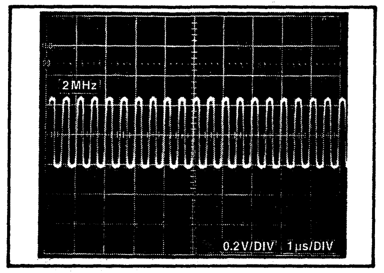

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Low-Pass Filter (Master clock Control)
Low-Pass Filter for Control Voltage
Low-Pass Filter (Tremolo Modulation Control)
D-A Converter
Envelope Control
Master Clock Selector
Serial Bus
Initial Clear
Data Bus (DB0~DB7)
Address Bus (AB0~AB6)
Microcomputer (Main CPU)
Gate Array
IC1
IC2
IC3
ROM (16K Byte) IC7
ROM (32K Byte) IC4
ROM (32K Byte) IC5
RAM (8K Byte) IC6
IC16-2
IC16-1
IC11-2
IC11-1
IC15-2
IC12-1
IC12-2
IC14-1
IC14-2
IC13-1
IC13-2
IC15-1
IC9-1
IC9-2
IC9-6
IC10-1
IC10-6
IC10-2
IC9-5
IC8-1
IC8-2
IC9-4
IC9-3
IC10-5
IC10-3
IC10-4
IC8-4
IC8-3
Q1
Q2
Q4
Q5
Q6
X1 15MHz
X2 4MHz
L1
L2
Z1
Z2
Z3 4.7K
Z4 4.7K
CN8
CN9
CN10
+15 (38)
-15 (39)
+5 (36,37)
E (11,23,40, 41,69)
TGM (MCMC) — MCMC (44)
TGM (MCTC) — MCTC (46)
LPM (LMF) — LMF (48)
LPM (LMS) — LMS (49)
CPR,MD,CPL, CPSL,CPSR, MPC,JACK1
RXD (27)
TXD (26)
SCK (28)
EOB (29)
(35)
EXP
EXP (34)
Expression
AUX Detection
Tempo
MIX (AUXC) — AUXC (22)
TEMP (31)
PCT (PCLK) — PCLK (12)
TGM-CN8
ECUS
ECLS
(Upper)
(Lower)
OPS (OPCK) — OPCK (54)
JACK2 (MDO) — MDO (25)
JACK2 (MDI) — MDI (24)
PCT (VUP) — VUP (13)
PCT (VLO) — VLO (14)
ORG (LS4C) — LS4C (18)
ORG (LSBC) — LSBC (19)
ORG (US4C) — US4C (20)
ORG (USBC) — USBC (21)
DPPS (FC) — FC (57)
DPPS (VCA) — VCA (56)
TGM (MCM) — MCM (43)
TGM (MCT) — MCT (45)
PS (SNS) — SNS (30)
OPS,DPPS,DSBA (RES) — RES (60)
TGM-CN7
IC1
IC2
(Expression, Main Volume)
(Bass)
(Drum Percussion)
(U. String Ensemble)
(L. String Ensemble)
(Reverb)
(Record Signal)
(6) NVCV — MIX (NVCV)
(10) PVCV — DSBA (PVCV)
(9) RVCV — DP (PVCV)
(1) USCV — PCT (USCV)
(2) LSCV — PCT (LSCV)
(3) VCCV — PCT (VCCV)
(7) ECCV — MIX (ECCV)
(8) SFR — MIX (SFR)
(59) AB0 — OPS,DPPS, DSBA,SEL,DP
(58) IOS2 — DSBA (IOS2)
(51) IOS4
(52) IOS5 — SEL (IOS5)
(50) IOS7 — DP (IOS7)
(55) IOS8 — DPPS (IOS8)
(53) IOS9 — DSBA (IOS9)
(61) DB0
(62) DB1
(63) DB2
(64) DB3
(65) DB4
(66) DB5
(67) DB6
(68) DB7
OPS,DPPS, DSBA,SEL, DP
TGM-CN7
UKB, LKB CN1 CN1
TGM-CN8
LKBS
UKBS
AB2
AB1
AB0
DWR
ROM (16K Byte) IC7
R15 1M
R28 100
VR2 10KB
VR1 10KB
R24 100
C41 5.5V0.1F
D1
D2
D3
C35 50V1
ANO
AN1
AN2
AN3
AN4
AN5
AN6
AN7
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC3
PC4
PC5
PC6
PC7
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PF0
PF1
PF2
PF3
PF4
PF5
PF6
PF7
INT1
NMI
RES
MODE0
MODE1
ALE
WR
RD
RX1
TXO
SCKO
CKO
CKI
X1
X0
CS1
CS0
CS2
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
AB0
AB1
AB2
AB3
AB4
AB5
AB6
AL0
AL1
AL2
AL3
AL4
AL5
AL6
AL7
CK
A0
DS
OD0
OD1
DO0
DO1
DO2
DO3
DO4
DO5
DO6

TGM TONE GENERATOR MODULE CIRCUIT BOARD

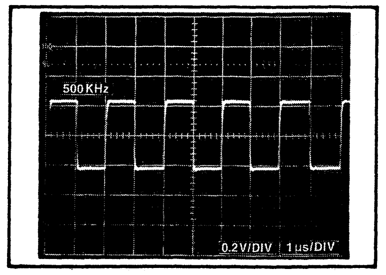
❶ Tab Master Clock (2MHz)



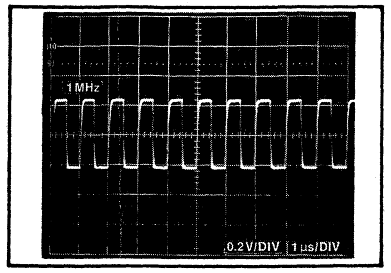
❷ Mono-Tone Master Clock



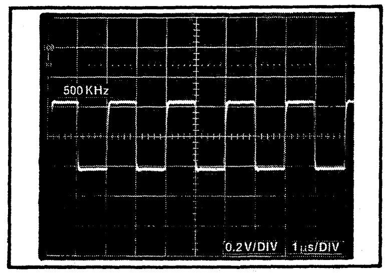
❸ Tab Clock (500KHz)



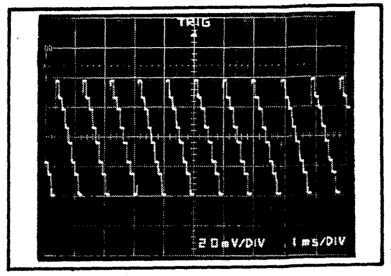
❹ CK (1MHz)



❺ Mono-Tone Clock (500KHz)

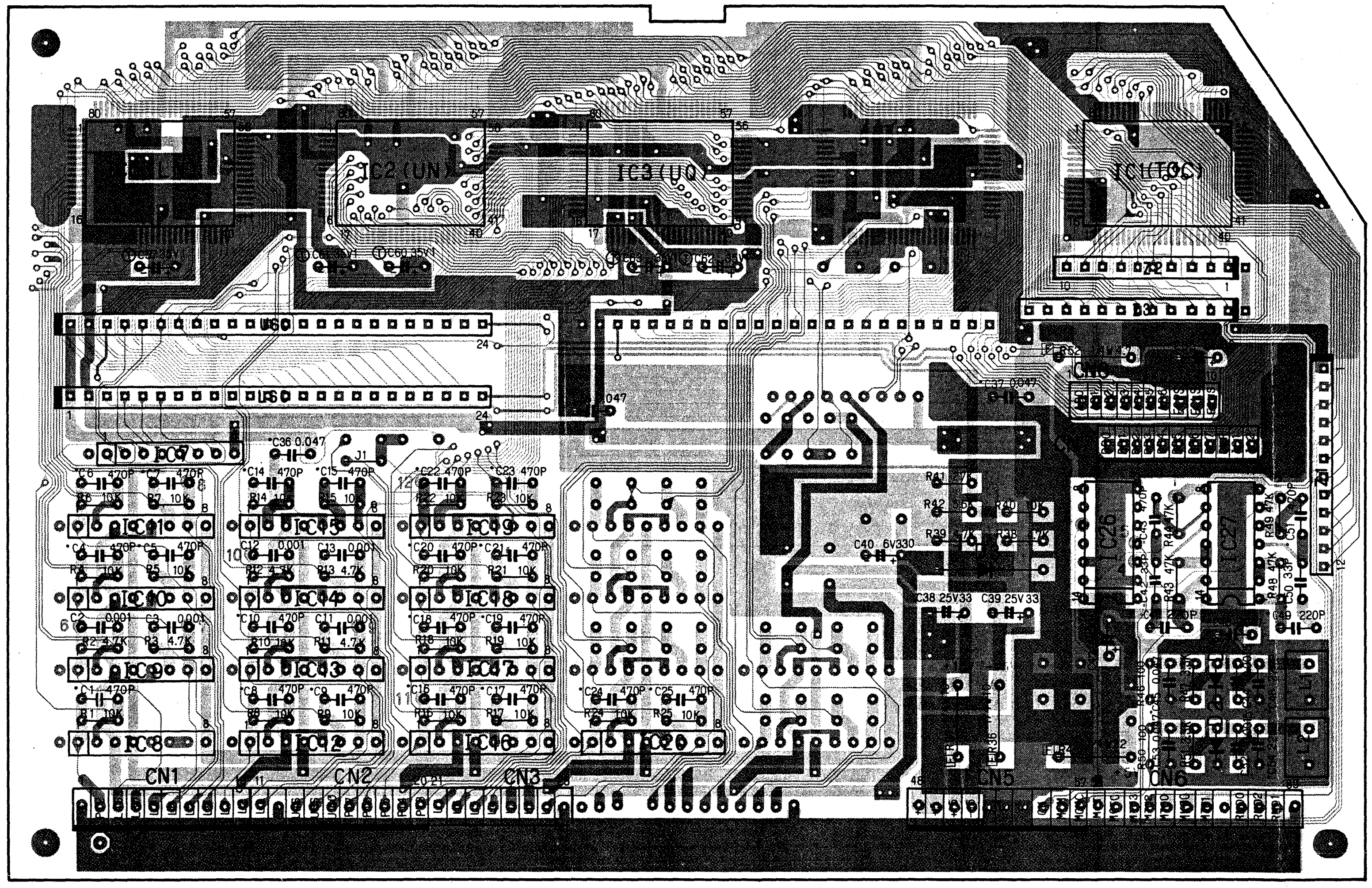


❻ L4S



- Lower Key C4

Circuit view on top of P.C.B


IC2(UN)
IC3(UQ)
IC1(TOC)
CN1
CN2
CN3
CN5
CN6
IC26
IC27

SXPG131521

NOTES:
- IC'S

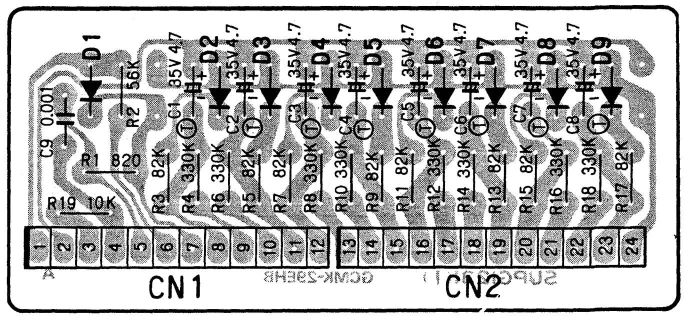
IC1:	SVIGUPD6303G
IC2, 3, 5:	SVIGUPD6304G
IC7~20:	SVIGM5218L
IC26:	SVIGTC40H393
IC27:	SVIGTC40H004

- DIODES

D1, 2:	MA165TA5
D3	SVDGRK14

USC UPPER TG SUSTAIN CONTROL CIRCUIT

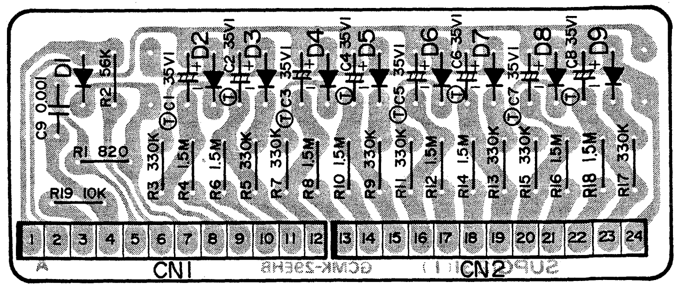
SXPG123141


D1
D2
D3
D4
D5
D6
D7
D8
D9
C9 0.001
R1 820
R2 56K
R19 10K
CN1
CN2

NOTES:
- DIODES
  D1~9: MA165TA5

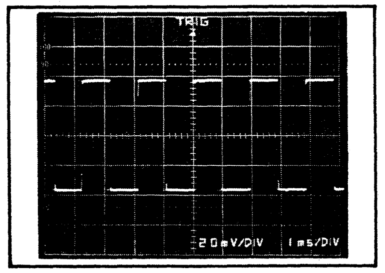
LSC LOWER TG SUSTAIN CONTROL CIRCUIT

SXPG12311


D1
D2
D3
D4
D5
D6
D7
D8
D9
C9 0.001
RI 820
R2 56K
R19 10K
CN1
CN2

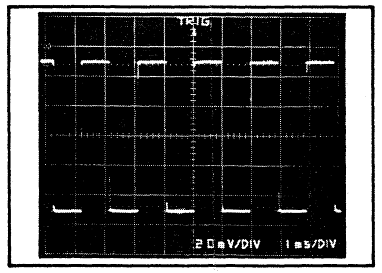
NOTES:
- DIODES
  D1~9: MA165TA5

❼ L80



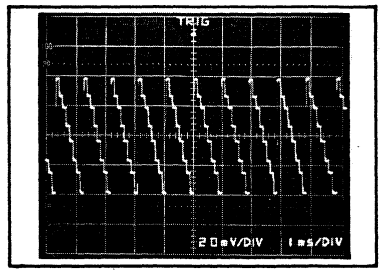
- Lower Key C4

❽ L4 (L1~L7)



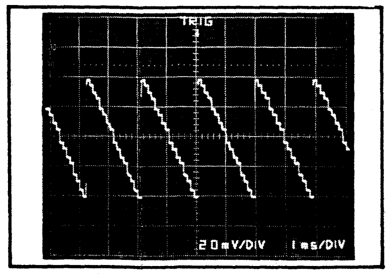
- Lower Tab Voices ....Flute 8′
- Lower Key C4

❾ U4S



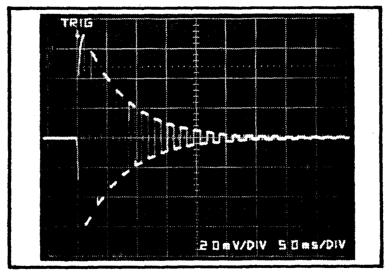
- Upper Key............................C4

❿ U8S



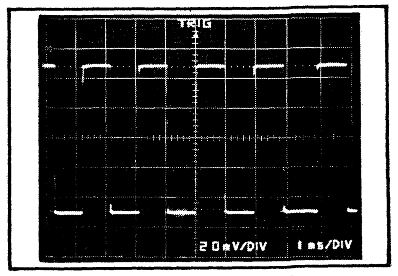
- Upper Key............................C4

⓫ PT5 (PT2~PT7)



- Percussive Tone.................4′
- Upper Key.............................C4
- Envelope..............................Short

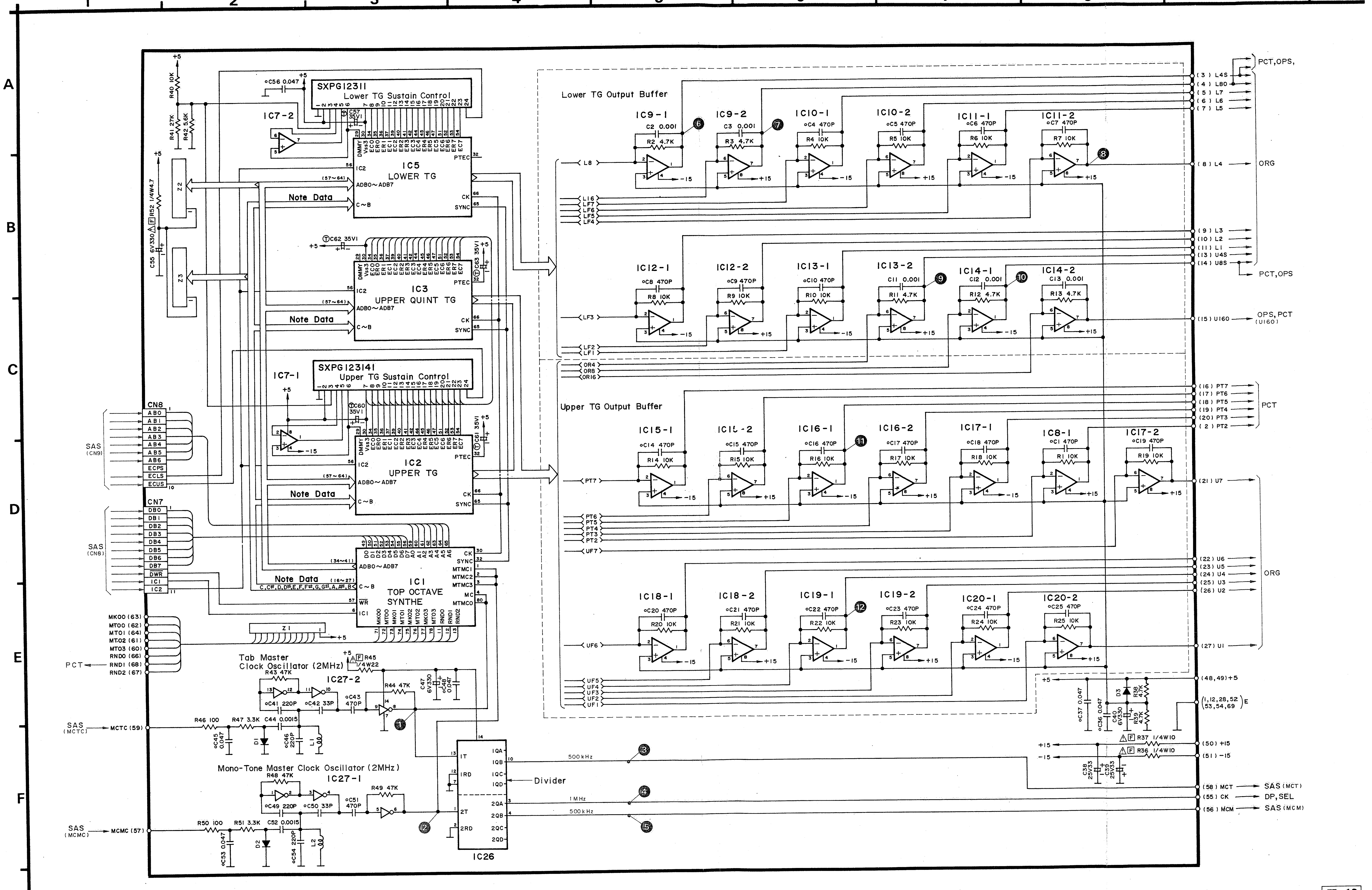
⓬ U4 (U1~U7)



- Upper Tab Voices...............Flute 8′
- Upper Key.............................C4

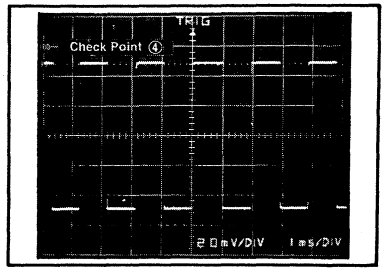
TGM

TONE GENERATOR MODULE CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPG12311
Lower TG Sustain Control
IC7-2
IC5
LOWER TG
ADB0～ADB7
Note Data
C～B
CK
SYNC
PTEC
Z2
Z3
C55 6V330
R52 1/4W4.7
R40 10K
R41 27K
R42 5.6K
C56 0.047
C57 35V1
C62 35V1
IC3
UPPER QUINT TG
SXPG123141
Upper TG Sustain Control
IC7-1
C60 35V1
C61 35V1
IC2
UPPER TG
IC1
TOP OCTAVE SYNTHE
MTMC1
MTMC2
MTMC3
MTMC0
WR
Z1
CN8
AB0
AB1
AB2
AB3
AB4
AB5
AB6
ECPS
ECLS
ECUS
SAS (CN9)
CN7
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
DWR
IC1
IC2
SAS (CN8)
MK00 (63)
MT00 (62)
MT01 (64)
MT02 (61)
MT03 (60)
RND0 (66)
RND1 (68)
RND2 (67)
PCT
Tab Master Clock Oscillator (2MHz)
IC27-2
R43 47K
R44 47K
R45 1/4W22
C41 220P
C42 33P
C43 470P
C47 6V330
C48 0.047
SAS (MCTC)
MCTC (59)
R46 100
R47 3.3K
C44 0.0015
C45 0.047
D1
C46 220P
L1
Mono-Tone Master Clock Oscillator (2MHz)
IC27-1
R48 47K
R49 47K
C49 220P
C50 33P
C51 470P
SAS (MCMC)
MCMC (57)
R50 100
R51 3.3K
C52 0.0015
C53 0.047
D2
C54 220P
L2
IC26
Divider
500kHz
1MHz
500kHz
Lower TG Output Buffer
IC9-1
IC9-2
IC10-1
IC10-2
IC11-1
IC11-2
C2 0.001
C3 0.001
C4 470P
C5 470P
C6 470P
C7 470P
R2 4.7K
R3 4.7K
R4 10K
R5 10K
R6 10K
R7 10K
L8
LF6
LF7
LF6
LF5
LF4
IC12-1
IC12-2
IC13-1
IC13-2
IC14-1
IC14-2
C8 470P
C9 470P
C10 470P
C11 0.001
C12 0.001
C13 0.001
R8 10K
R9 10K
R10 10K
R11 4.7K
R12 4.7K
R13 4.7K
LF3
LF2
LF1
OR4
OR8
OR16
Upper TG Output Buffer
IC15-1
IC15-2
IC16-1
IC16-2
IC17-1
IC8-1
IC17-2
C14 470P
C15 470P
C16 470P
C17 470P
C18 470P
C1 470P
C19 470P
R14 10K
R15 10K
R16 10K
R17 10K
R18 10K
R1 10K
R19 10K
PT7
PT6
PT5
PT4
PT3
PT2
UF7
IC18-1
IC18-2
IC19-1
IC19-2
IC20-1
IC20-2
C20 470P
C21 470P
C22 470P
C23 470P
C24 470P
C25 470P
R20 10K
R21 10K
R22 10K
R23 10K
R24 10K
R25 10K
UF6
UF5
UF4
UF3
UF2
UF1
-15
+15
(3) L4S
(4) L80
(5) L7
(6) L6
(7) L5
PCT,OPS,
(8) L4
ORG
(9) L3
(10) L2
(11) L1
(13) U4S
(14) U8S
PCT,OPS
(15) U160
OPS, PCT (U160)
(16) PT7
(17) PT6
(18) PT5
(19) PT4
(20) PT3
(2) PT2
PCT
(21) U7
(22) U6
(23) U5
(24) U4
(25) U3
(26) U2
ORG
(27) U1
(48,49) +5
(1,12,28,52,53,54,69) E
C37 0.047
C36 0.047
C40 6V330
D3
R38 4.7K
R39 4.7K
R37 1/4W10
R36 1/4W10
C38 25V33
C39 25V33
(50) +15
(51) -15
(58) MCT
(55) CK
(56) MCM
SAS (MCT)
DP, SEL
SAS (MCM)
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫

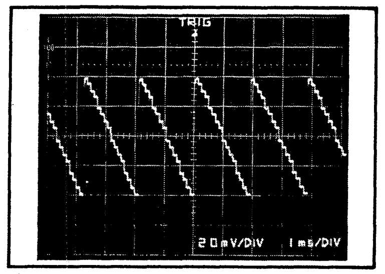
ORG ORGAN CIRCUIT BOARD

❶, ❷, ❸, ❹, ❺, ❻, ❼



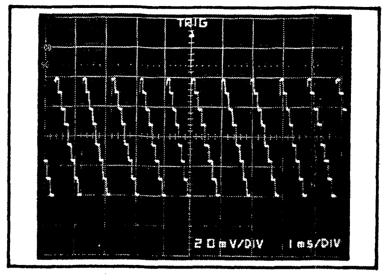
- Upper Tab............................Flute 8′
- Upper Key............................C4

❽



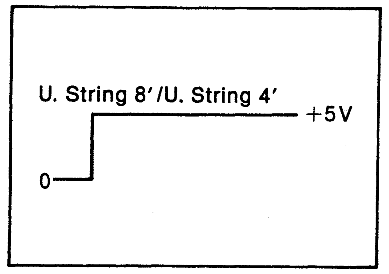
- Upper Tab............................String 8′
- Upper Key............................C4

❾



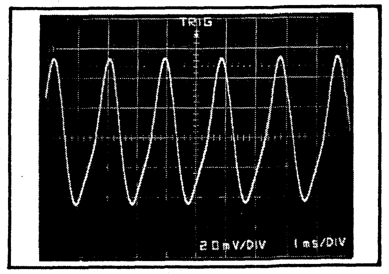
- Upper Tab
- Upper Key............................C4

US8C/US4C Terminal

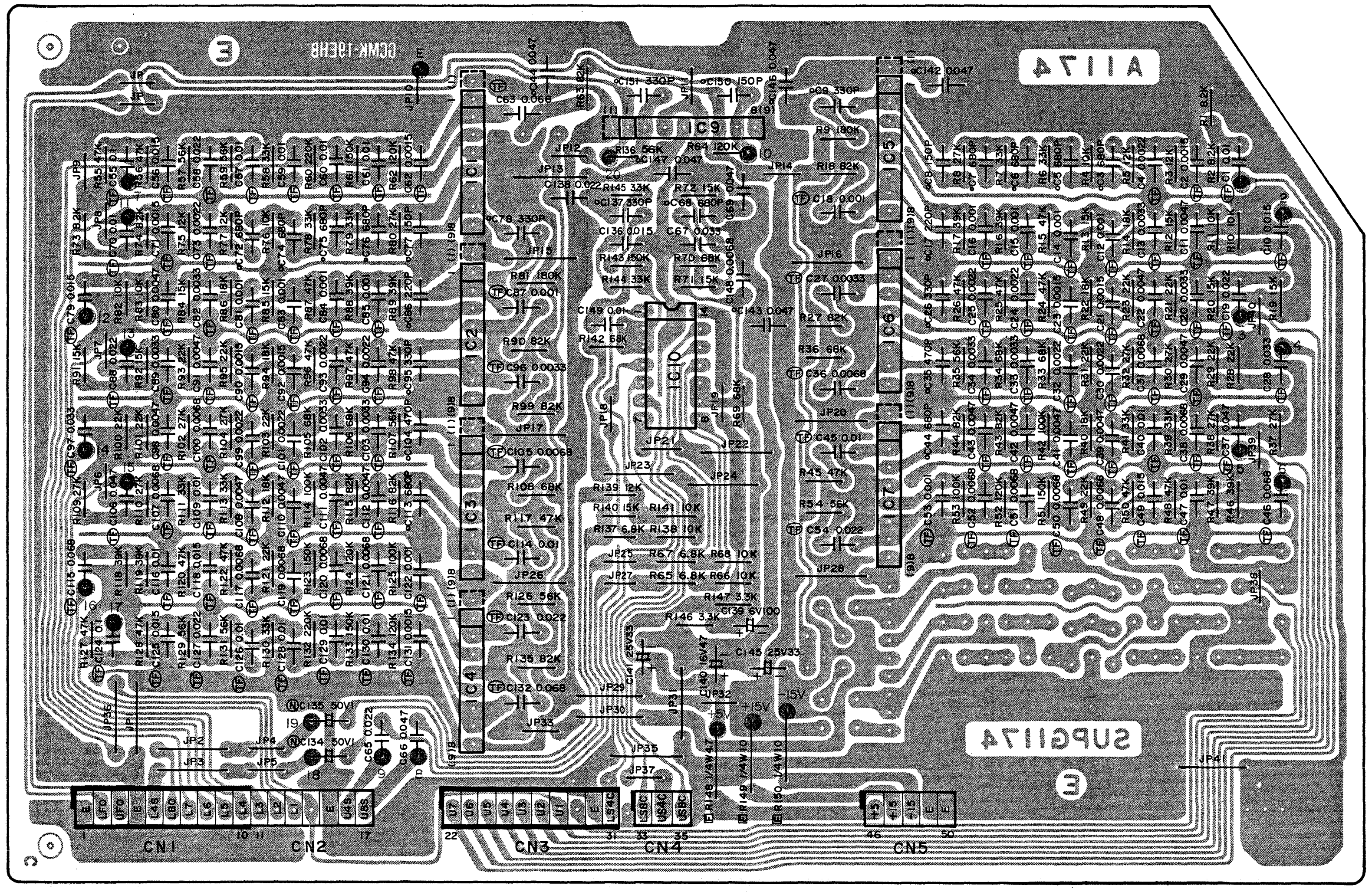

U. String 8′/U. String 4′
+5V
0

- Upper Tab..................String 8′/String 4′

❿



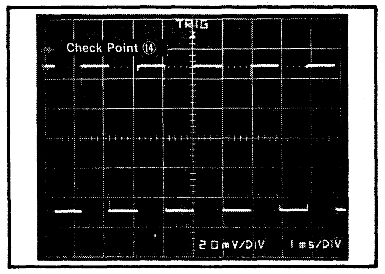
- Upper Tab............................Flute 8′
- Upper Key............................C4


A1174
SUPG1174
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC9
IC10
CN1
CN2
CN3
CN4
CN5
+15V
-15V

SXPG117461A

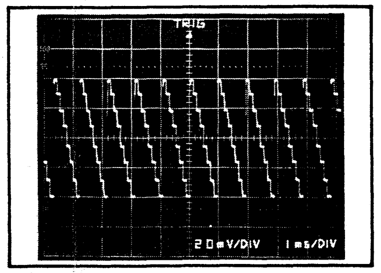
NOTES:
- IC'S
  - IC1~7, 9: SVIGM5218L
  - IC10: SVIGUPD4066B

⓫, ⓬, ⓭, ⓮, ⓯, ⓰, ⓱



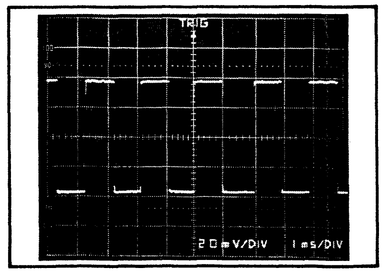
- Lower Tab ....Flute 8′
- Lower Key C4

⓲



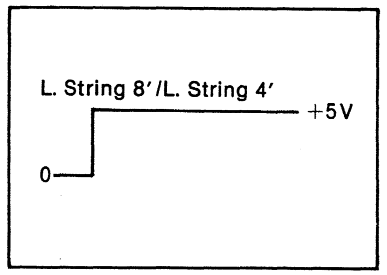
- Lower Tab
- Lower Key C4

⓳



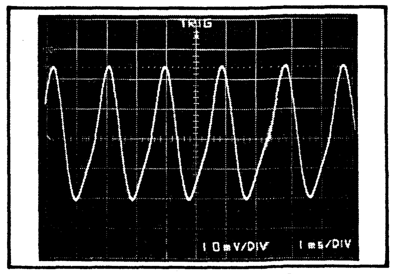
- Lower Tab ....String 8′
- Lower Key C4

LS8C/LS4C Terminal


L. String 8′/L. String 4′
+5V
0

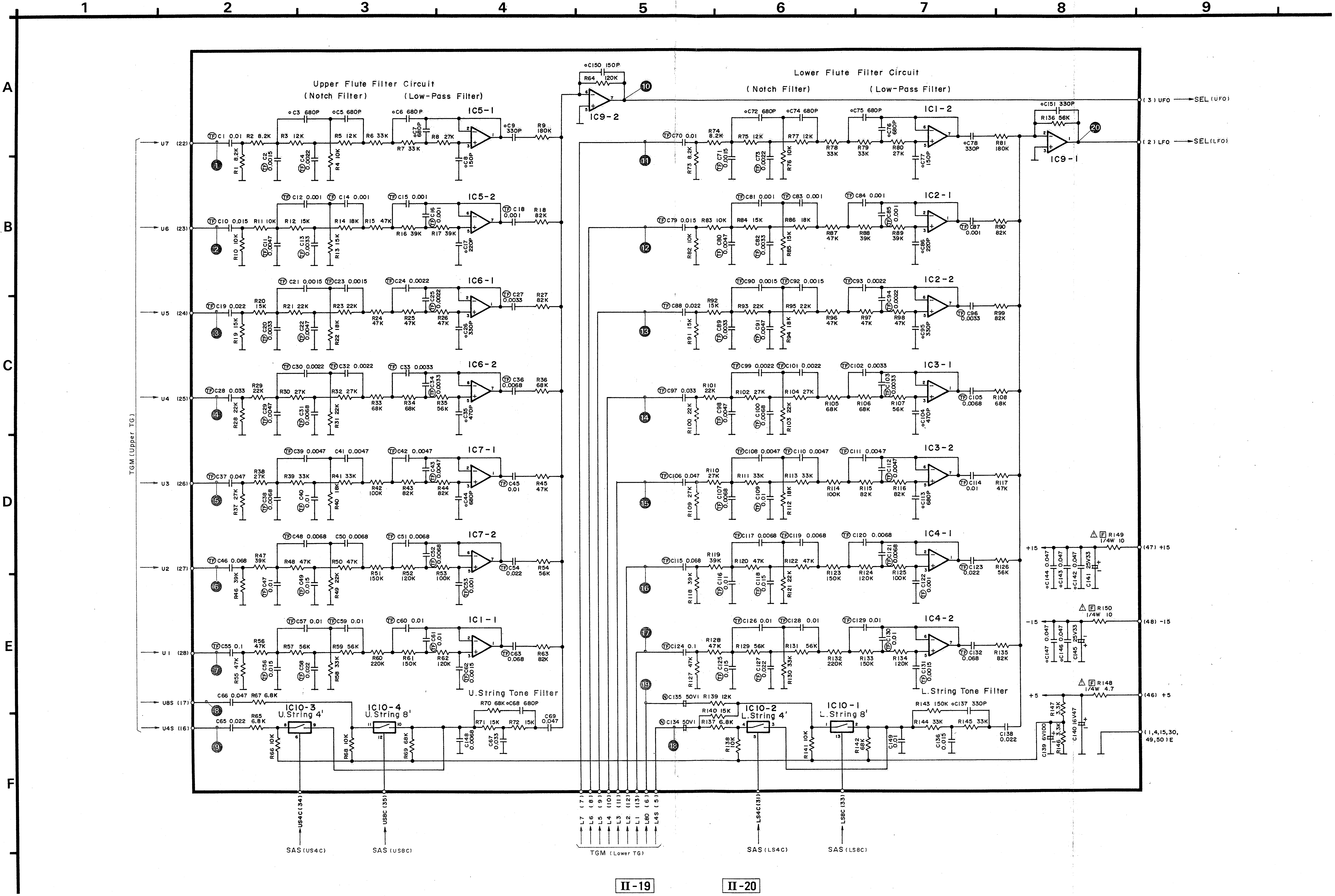
- Lower Tab ....String 8′/String 4′

⓴



- Lower Tab ....Flute 8′
- Lower Key C4

ORGAN CIRCUIT DIAGRAM

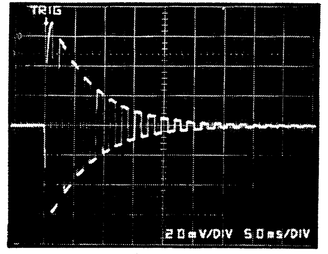

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Upper Flute Filter Circuit
(Notch Filter)
(Low-Pass Filter)
Lower Flute Filter Circuit
(Notch Filter)
(Low-Pass Filter)
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC1-1
IC9-2
IC9-1
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
C150 150P
R64 120K
C151 330P
R136 56K
IC10-3
U.String 4'
IC10-4
U.String 8'
U.String Tone Filter
IC10-2
L.String 4'
IC10-1
L.String 8'
L.String Tone Filter
TGM (Upper TG)
U7 (22)
U6 (23)
U5 (24)
U4 (25)
U3 (26)
U2 (27)
U1 (28)
U8S (17)
U4S (16)
(3) UFO
SEL (UFO)
(2) LFO
SEL (LFO)
+15
R149 1/4W 10
(47) +15
-15
R150 1/4W 10
(48) -15
+5
R148 1/4W 4.7
(46) +5
(1,4,15,30, 49,50) E
US4C (34)
US8C (35)
SAS (US4C)
SAS (US8C)
L7 (7)
L6 (8)
L5 (9)
L4 (10)
L3 (11)
L2 (12)
L1 (13)
L8D (6)
L4S (5)
TGM (Lower TG)
LS4C (31)
LS8C (33)
SAS (LS4C)
SAS (LS8C)

PCT PERCUSSIVE TONE CIRCUIT BOARD

1 2 3 4 5 6 7 8 9

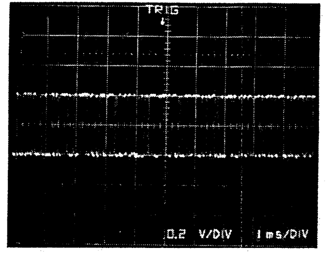
A

❸ PT5 (❶ PT7～❻ PT2)

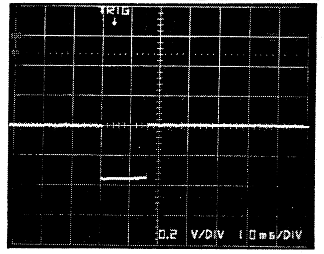


- Percussive Tone................4'
- Upper Key............................C4
- Envelope.............................Short

❼ Noise Signal

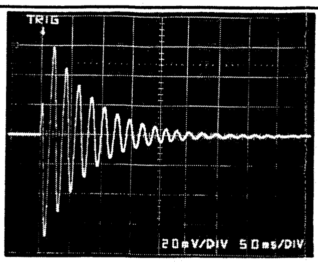


PCLK Terminal



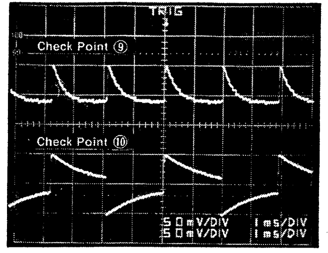
- Percussive Tone................Click
- Upper Key............................ON

❽



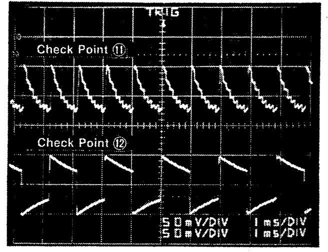
- Percussive Tone................4'
- Upper Key............................C4
- Envelope.............................Short

❾, ❿



- U. String Ensemble............ON
- Upper Key............................C4

⓫, ⓬



- L. String Ensemble ....ON
- Lower Key C4

⓭, ⓮

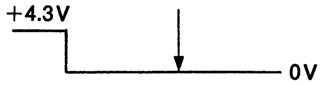
⓭ L. String Ensemble Volume Control
⓮ U. String Ensemble Volume Control
Step 1...............−9V
Step 2...............−6.3V
Step 3...............−3.4V
Step 4...............0V

- U/L String Ensemble
- Volume................................step 1～4

B

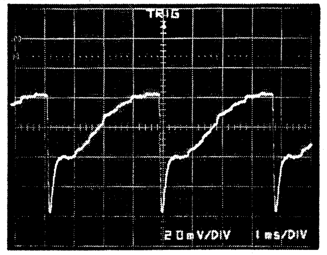
⓯, ⓰, ⓱, ⓲

⓯ U. String Ensemble: Violin
⓰ U. String Ensemble: Cello
⓱ L. String Ensemble: Violin
⓲ L. String Ensemble: Cello



C

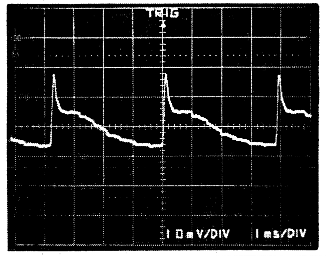
⓳



- U. String Ensemble...........Cello
- Upper Key............................C4
- Volume................................step 4

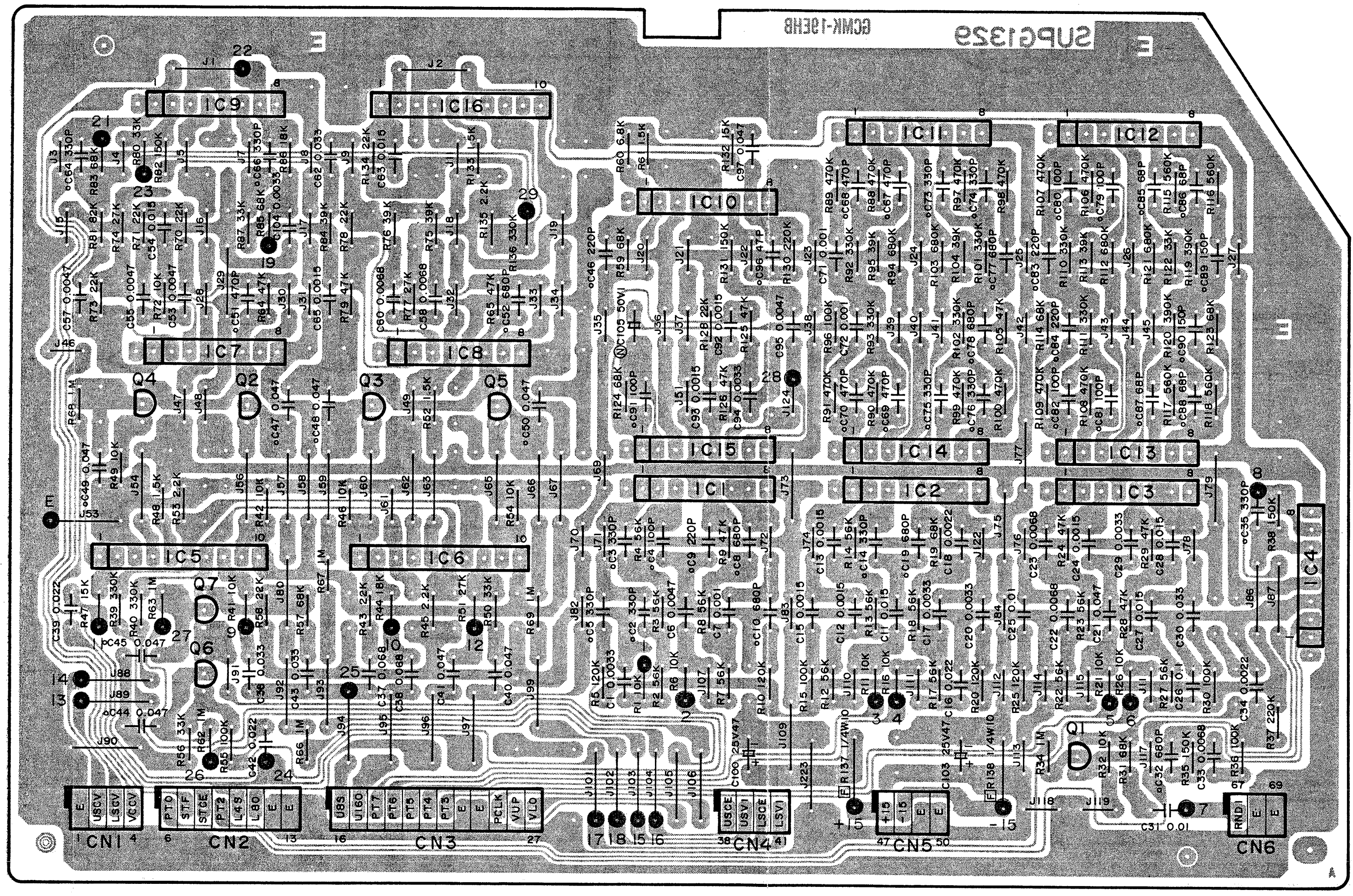
D

㉒



- U. String Ensemble...........Cello
- Upper Key............................C4
- Volume................................step 4

E

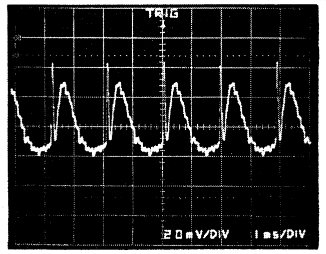

SUPG1329
GCMK-19EHB
IC9
IC16
IC10
IC11
IC12
IC7
IC8
IC15
IC14
IC13
IC1
IC2
IC3
IC4
IC5
IC6
Q1
Q2
Q3
Q4
Q5
Q6
Q7
CN1
CN2
CN3
CN4
CN5
CN6
+15
−15
21
22
23
24
25
26
27
28
29

SXPG132921

NOTES:
- **IC'S**
  IC1～4, 7～15: SVIGM5218L
  IC5, 6, 16: SVIGM5241L
- **TRANSISTORS**
  Q1～7: 2SJ40CD

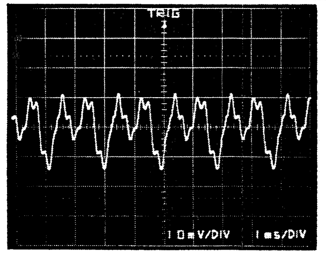
F

㉑



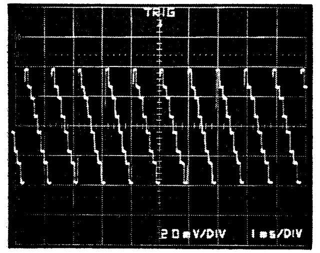
- U. String Ensemble ....Violin
- Upper Key............................C4
- Volume................................step 4

㉓



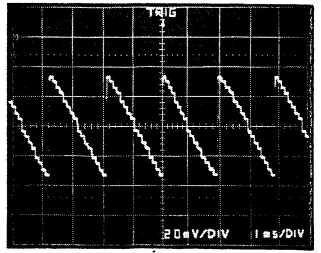
- U. Vocal Ensemble............ON
- Upper Key............................C4
- Volume................................step 4

㉔



- L. String Ensemble ....ON
- Lower Key C4

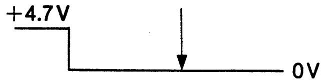
㉕



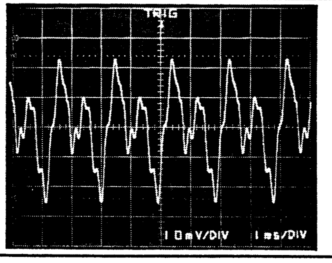
- U. String Ensemble ....ON
- Upper Key............................C4

㉖, ㉗

㉖ Lower Vocal Ensemble
㉗ Upper Vocal Ensemble



㉘



- U. Vocal Ensemble............ON
- Upper Key............................C4
- Volume................................step 4

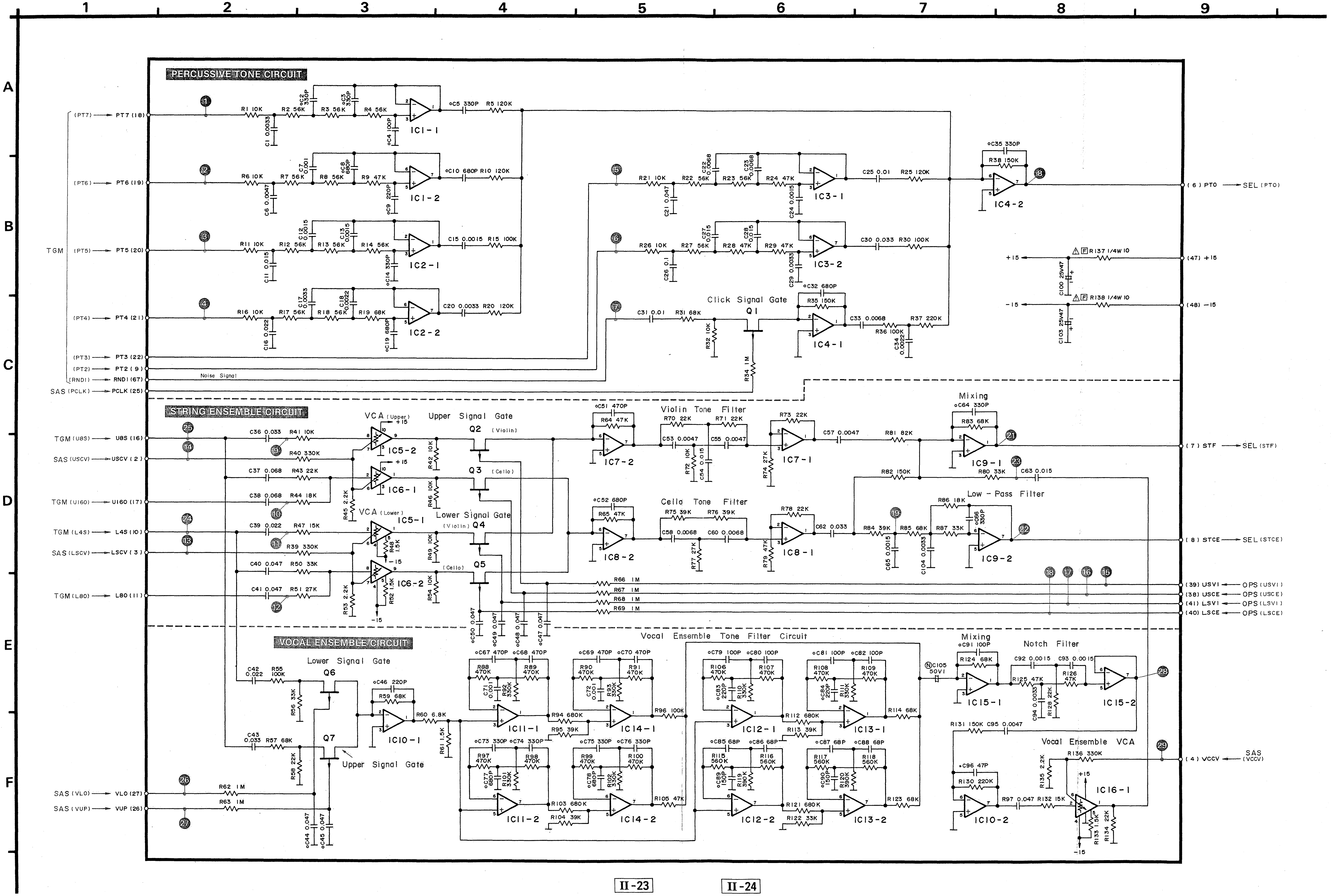
㉙

- Vocal Ensemble Volume Control
  Step 1..................−9.6V
  Step 2..................−7.0V
  Step 3..................−3.4V
  Step 4..................0V

- U & L Vocal Ensemble
- Volume................................step 1～4

PCT

PERCUSSIVE TONE CIRCUIT DIAGRAM

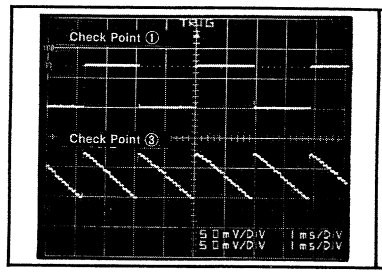

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
PERCUSSIVE TONE CIRCUIT
TGM
(PT7) → PT7 (18)
(PT6) → PT6 (19)
(PT5) → PT5 (20)
(PT4) → PT4 (21)
(PT3) → PT3 (22)
(PT2) → PT2 (9)
(RND1) → RND1 (67)
SAS (PCLK) → PCLK (25)
Noise Signal
IC1-1
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
Click Signal Gate
Q1
(6) PTO → SEL (PTO)
+15
-15
(47) +15
(48) -15
R137 1/4W 10
R138 1/4W 10
C100 25V47
C103 25V47
STRING ENSEMBLE CIRCUIT
TGM (U8S) → U8S (16)
SAS (USCV) → USCV (2)
TGM (U160) → U160 (17)
TGM (L4S) → L4S (10)
SAS (LSCV) → LSCV (3)
TGM (L80) → L80 (11)
VCA (Upper)
VCA (Lower)
IC5-2
IC6-1
IC5-1
IC6-2
Upper Signal Gate
Lower Signal Gate
Q2 (Violin)
Q3 (Cello)
Q4 (Violin)
Q5 (Cello)
Violin Tone Filter
Cello Tone Filter
IC7-2
IC7-1
IC8-2
IC8-1
Mixing
IC9-1
Low-Pass Filter
IC9-2
(7) STF → SEL (STF)
(8) STCE → SEL (STCE)
R66 1M
R67 1M
R68 1M
R69 1M
(39) USVI ← OPS (USVI)
(38) USCE ← OPS (USCE)
(41) LSVI ← OPS (LSVI)
(40) LSCE ← OPS (LSCE)
VOCAL ENSEMBLE CIRCUIT
Lower Signal Gate
Q6
Q7
Upper Signal Gate
IC10-1
Vocal Ensemble Tone Filter Circuit
IC11-1
IC11-2
IC14-1
IC14-2
IC12-1
IC12-2
IC13-1
IC13-2
C105 50V1
Mixing
IC15-1
Notch Filter
IC15-2
Vocal Ensemble VCA
IC10-2
IC16-1
SAS (VLO) → VLO (27)
SAS (VUP) → VUP (26)
(4) VCCV ← SAS (VCCV)

OPS ORCHESTRAL PRESETS CIRCUIT BOARD

1 2 3 4 5 6 7 8 9

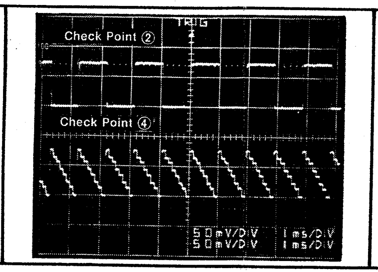
A B C D E F

❶, ❸



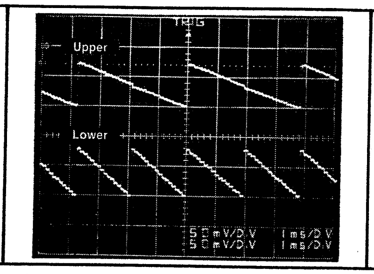
- U. Orchestral Presets
- Upper Key............................C4

❷, ❹



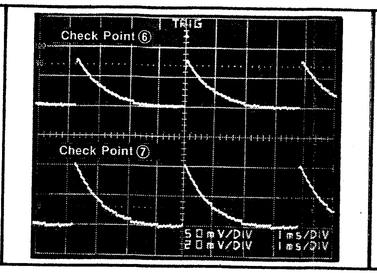
- L. Orchestral Presets
- Lower Key............................C4

❺



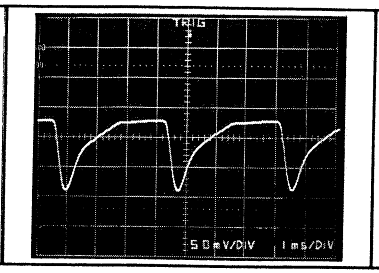
- U & L Orchestral Presets
- Upper or Lower Key...........C4

❻, ❼



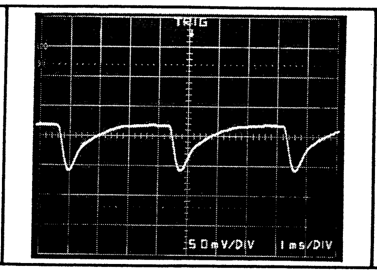
- Upper Orchestral Presets.....Trombone
- Upper Key............................C4

❽



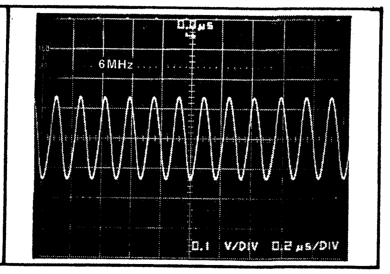
- Upper Orchestral Presets.....Trombone
- Upper Key............................C4
- Harmonic Control...............Normal

❾



- Upper Orchestral Presets.....Trombone
- Upper Key............................C4
- Harmonic Control...............Normal

❿ 6MHz

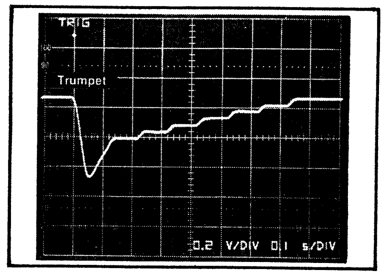


⓰, ⓱

	⓰	⓱
Trumpet	1.1V	−4.2V
Trombone	1.1V	−3.8V
French Horn	0V	−4.2V
Saxophone	0V	−9.5V
Accordion	0.55V	−9.8V
Clarinet	0.55V	−6.0V
Synthe Brass	0.8V	−6.8V
Wah Brass	1.9V	−3.0V

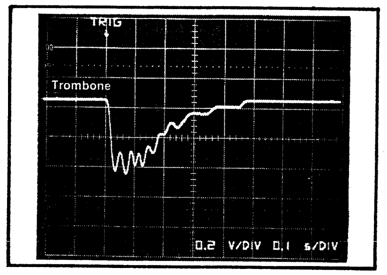
- Harmonic Control...............Normal

⓲ Envelope Control Trumpet

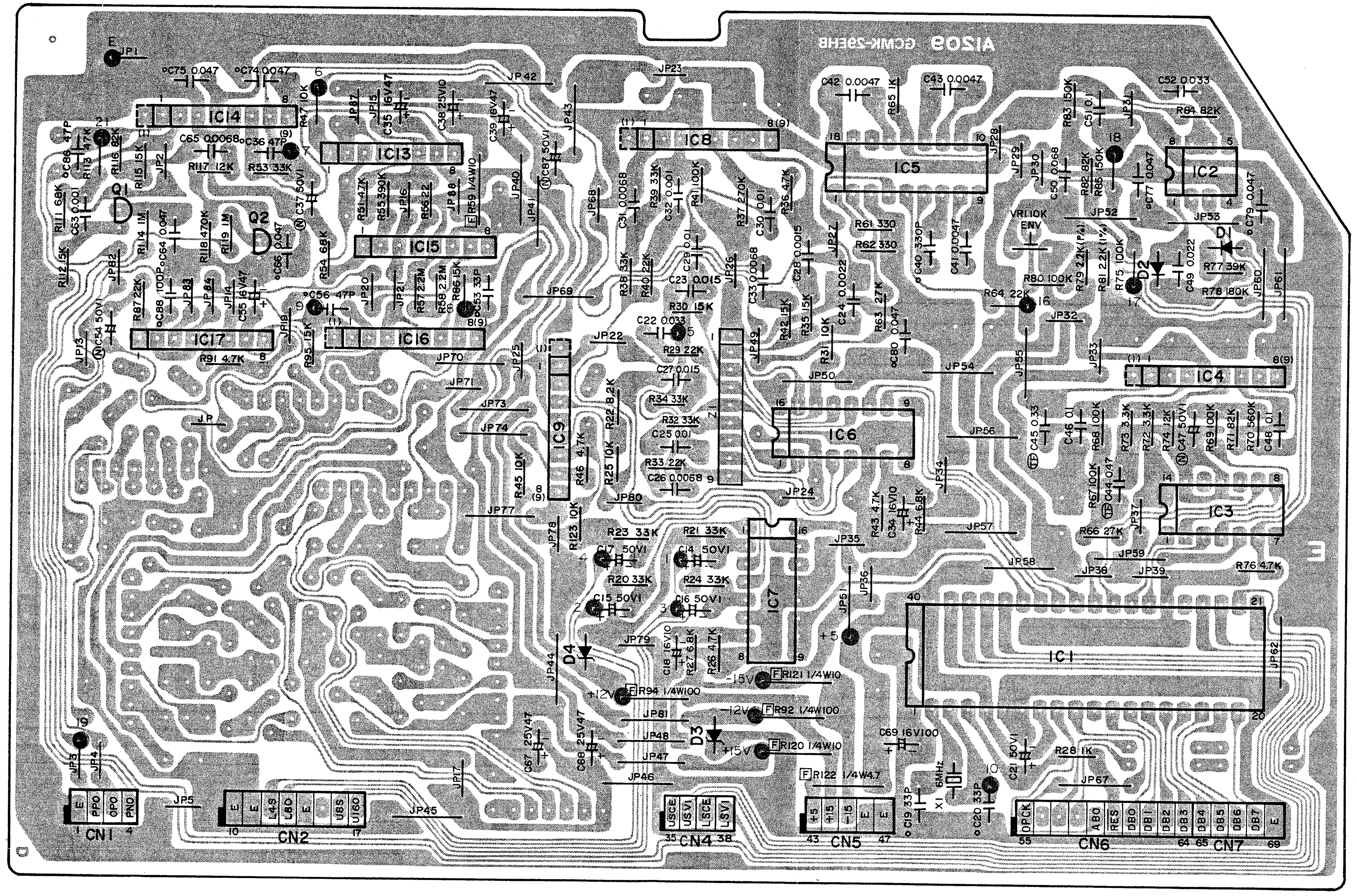


- Orchestral Presets.............Trombone
- Upper Key............................ON

⓲ Trombone



- Orchestral Presets.............Trombone
- Upper Key............................ON



SXPG120951A

NOTES:
- IC'S

IC1:	SVIGM8041145
IC2:	SVIGNJM082D
IC3:	SVIGTC40H004
IC4, 8, 9, 14, 16:	SVIGM5218L
IC5:	SVIGBA6704
IC6:	SVIGHD14051B
IC7:	SVIGTC4053BP
IC13, 17:	SVIGUPC1252H
IC15:	SVIGUPC1253H

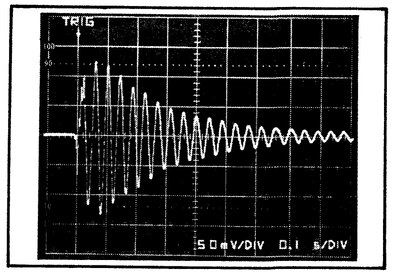
- TRANSISTORS

Q1, 2:	2SJ40CD

- DIODES

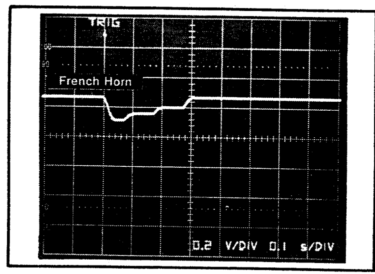
D1, 2:	MA165TA5
D3, 4:	MA4120M

㉑ Percussive Presets



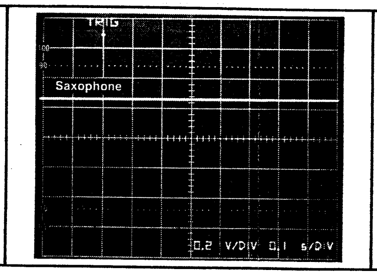
- Percussive Presets............Piano
- Upper Key............................C4
- Sustain................................Short
- Harmonic Control...............Normal

⓲ French Horn



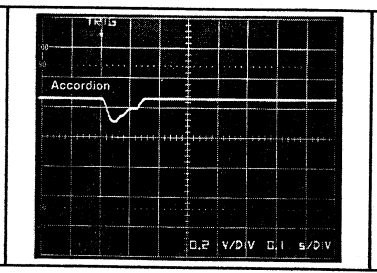
- Orchestral Presets.............French Horn
- Upper Key............................ON

⓲ Saxophone



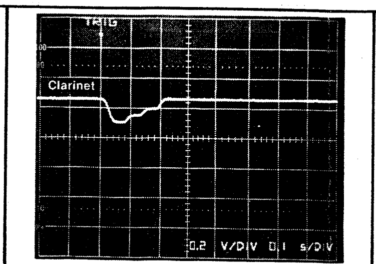
- Orchestral Presets.............Saxophone
- Upper Key............................ON

⓲ Accordion



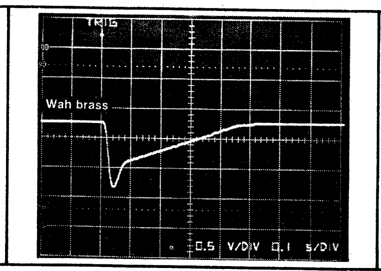
- Orchestral Presets.............Accordion
- Upper Key............................ON

⓲ Clarinet



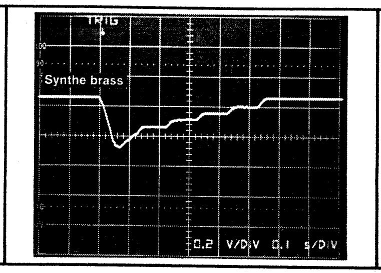
- Orchestral Presets.............Clarinet
- Upper Key............................ON

⓲ Wah Brass



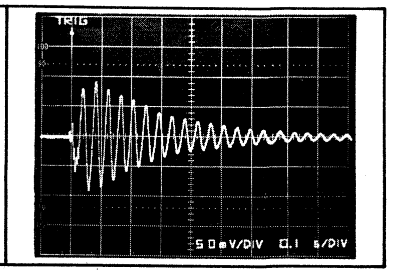
- Orchestral Presets.............Wah Brass
- Upper Key............................ON
- Harmonic Control...............Normal

⓲ Synthe Brass



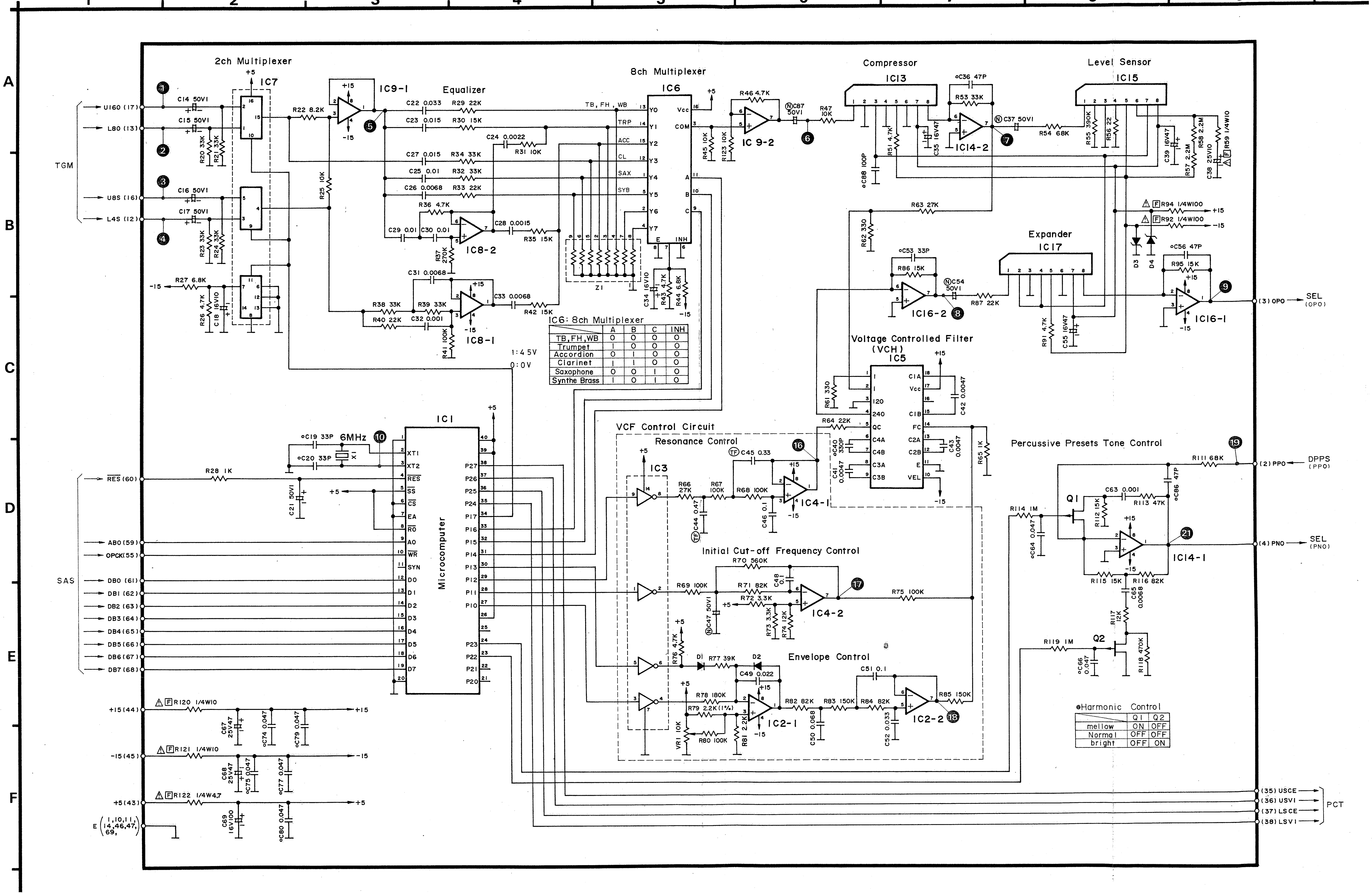
- Orchestral Presets.............Synthe Brass
- Upper Key............................ON

⓳ Percussive Presets



- Percussive Presets............Piano
- Upper Key............................C4
- Sustain................................Short

ORCHESTRAL PRESETS CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
2ch Multiplexer
IC7
IC9-1
Equalizer
8ch Multiplexer
IC6
IC 9-2
Compressor
IC13
IC14-2
Level Sensor
IC15
Expander
IC17
IC16-2
IC16-1
IC8-2
IC8-1
Z1
TGM
U160 (17)
L80 (13)
U8S (16)
L4S (12)
TB, FH, WB
TRP
ACC
CL
SAX
SYB
Voltage Controlled Filter
(VCH)
IC5
IC1
Microcomputer
6MHz
1:4 5V
0:0V
VCF Control Circuit
Resonance Control
IC3
IC4-1
Initial Cut-off Frequency Control
IC4-2
Envelope Control
IC2-1
IC2-2
Percussive Presets Tone Control
Q1
Q2
IC14-1
RES (60)
AB0 (59)
OPCK (55)
SAS
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
+15 (44)
-15 (45)
+5 (43)
E (1, 10, 11, 14, 46, 47, 69)
(3) OPO
SEL (OPO)
(2) PPO
DPPS (PPO)
(4) PNO
SEL (PNO)
(35) USCE
(36) USVI
(37) LSCE
(38) LSVI
PCT

IC6: 8ch Multiplexer

	A	B	C	INH
TB, FH, WB	0	0	0	0
Trumpet	1	0	0	0
Accordion	0	1	0	0
Clarinet	1	1	0	0
Saxophone	0	0	1	0
Synthe Brass	1	0	1	0

●Harmonic Control

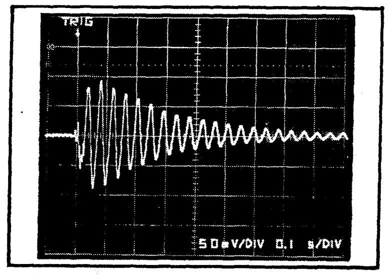
	Q1	Q2
mellow	ON	OFF
Normal	OFF	OFF
bright	OFF	ON

DIGITAL PERCUSSIVE PRESETS CIRCUIT BOARD

1 2 3 4 5 6 7 8 9

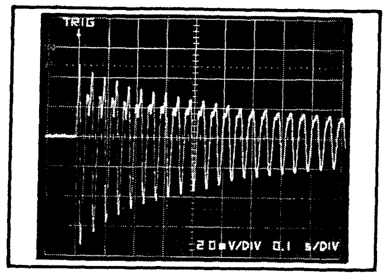
A

❶ Piano



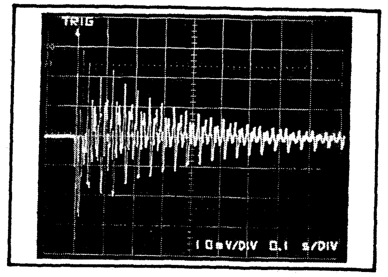
- Percussive Presets ....Piano
- Sustain ....Short (off)
- Upper Key............................C4

❶ Electric Piano



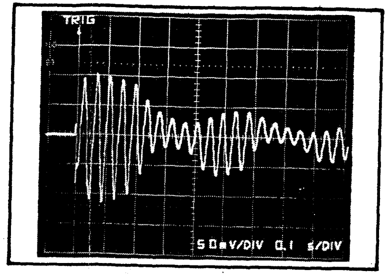
- Percussive Presets ....Electric Piano
- Sustain ....Short (off)
- Upper Key............................C4

❶ Harpsichord



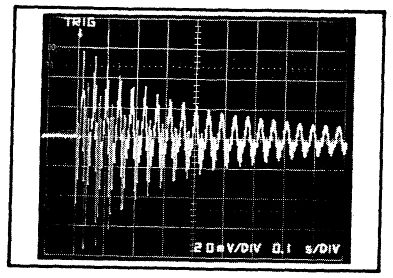
- Percussive Presets ....Harpsichord
- Sustain ....Short (off)
- Upper Key............................C4

❶ Vibraphone



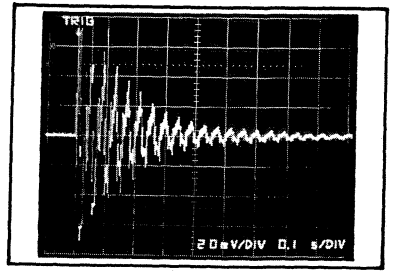
- Percussive Presets ....Vibraphone
- Sustain ....Short (off)
- Upper Key............................C4

❶ Guitar



- Percussive Presets ....Guitar
- Sustain ....Short (off)
- Upper Key............................C4

❶ Banjo

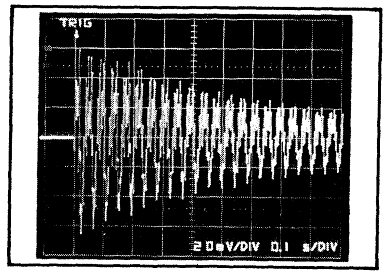


- Percussive Presets ....Banjo
- Sustain ....Short (off)
- Upper Key............................C4

B

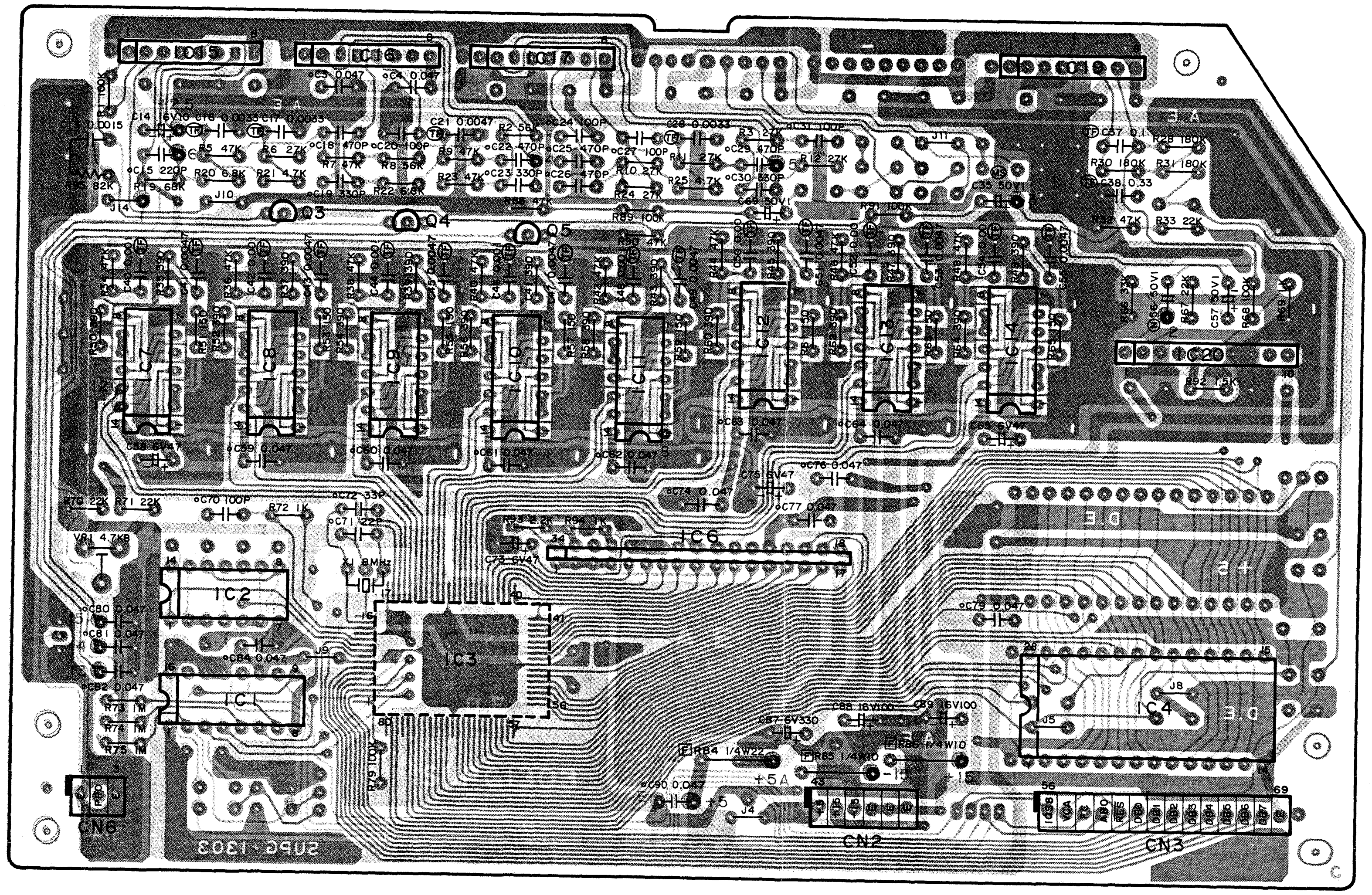
Circuit view on top of P.C.B

❶ Clavi



- Percussive Presets ....Clavi
- Sustain ....Short (off)
- Upper Key............................C4

C


IC1
IC2
IC3
IC4
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC19
IC20
Q3
Q4
Q5
VR1 4.7KB
X1 8MHz
+5A
+5
-15
J4
CN2
CN3
CN6
SUPG-1303

SXPG130331

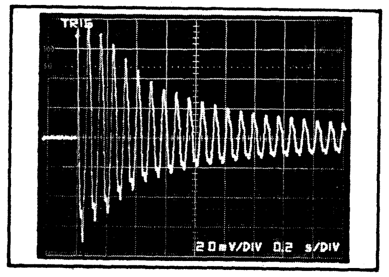
NOTES:
- IC'S

IC1:	MN40174B
IC2:	SVIGTC40H002
IC3:	SVIGUPD6312
IC4:	SVIG1000C063
IC6:	EHMMS466
IC7～14:	MN74HC4066
IC15～17, 19:	SVIGM5218L
IC20:	SVIGM5241L

- TRANSISTORS

Q3～5:	2SJ40CD

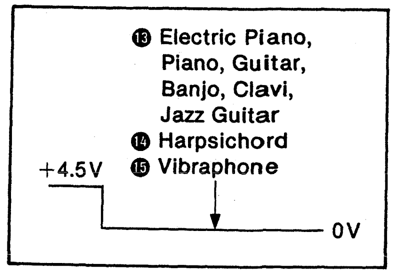
❶ Jazz Guitar



- Percussive Presets ....Jazz Guitar
- Sustain ....Short (off)
- Upper Key............................C4

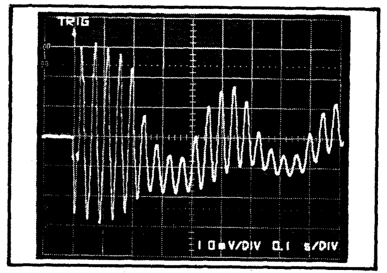
D

⓭,⓮,⓯


⓭ Electric Piano, Piano, Guitar, Banjo, Clavi, Jazz Guitar
⓮ Harpsichord
⓯ Vibraphone
+4.5V
0V

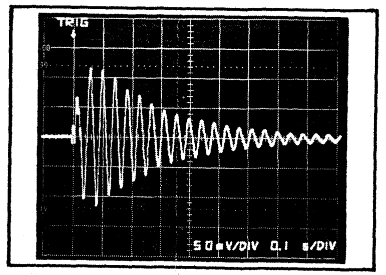
E

❷ Vibraphone



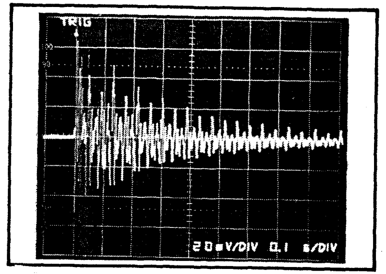
- Percussive Presets ....Vibraphone
- Sustain ....Short (off)
- Upper Key............................C4

❸,❹



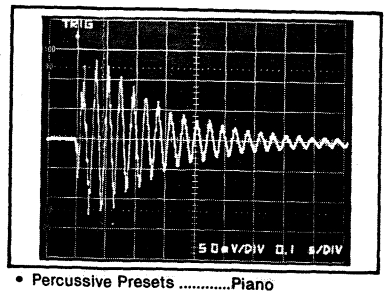
- Percussive Presets ....Piano
- Sustain ....Short (off)
- Upper Key............................C4

❺ Harpsichord



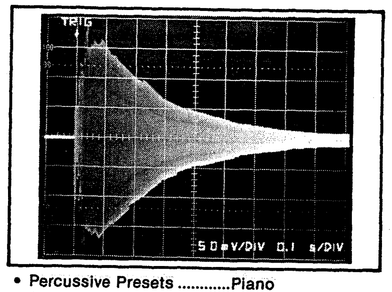
- Percussive Presets ....Harpsichord
- Sustain ....Short (off)
- Upper Key............................C4

❻



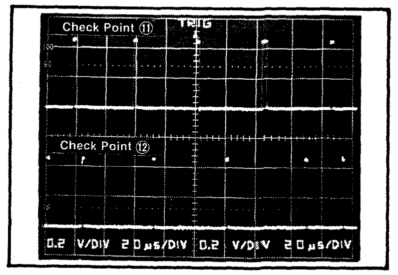
- Percussive Presets ....Piano
- Sustain ....Short (off)
- Upper Key............................C4

❽



- Percussive Presets ....Piano
- Sustain ....Short (off)
- Upper Key............................C4

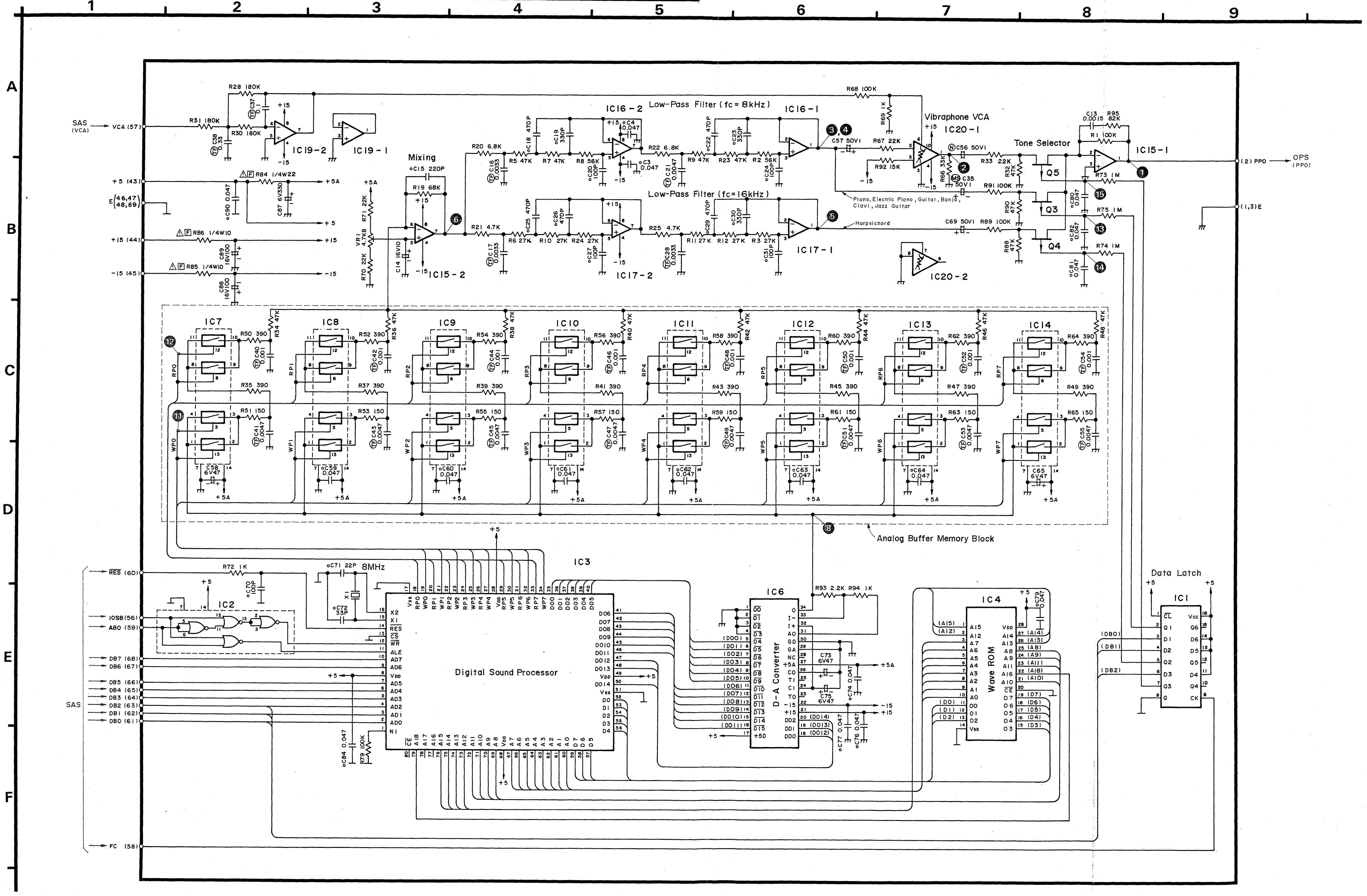
⓫,⓬



F

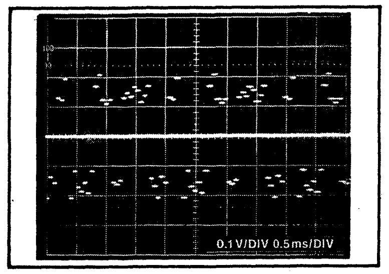
DPPS

DIGITAL PERCUSSIVE PRESETS CIRUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SAS (VCA)
VCA (57)
R31 180K
R28 180K
R30 180K
C37 0.1
C38 0.33
IC19-2
IC19-1
+15
-15
+5 (43)
E (46,47) (48,69)
+15 (44)
-15 (45)
R84 1/4W22
R86 1/4W10
R85 1/4W10
C90 0.047
C87 6V330
C89 16V100
C88 16V100
+5A
+5
Mixing
C15 220P
R19 68K
R71 22K
VR1 4.7KB
R70 22K
C14 16V10
IC15-2
Low-Pass Filter (fc = 8kHz)
Low-Pass Filter (fc=16kHz)
IC16-2
IC16-1
IC17-2
IC17-1
R20 6.8K
R5 47K
R7 47K
R8 56K
R22 6.8K
R9 47K
R23 47K
R2 56K
R21 4.7K
R6 27K
R10 27K
R24 27K
R25 4.7K
R11 27K
R12 27K
R3 27K
C18 470P
C19 330P
C16 0.0033
C20 100P
C4 0.047
C3 0.047
C22 470P
C23 330P
C21 0.0047
C24 100P
C25 470P
C26 470P
C17 0.0033
C27 100P
C29 470P
C30 330P
C28 0.0033
C31 100P
R68 100K
R69 1K
Vibraphone VCA
IC20-1
IC20-2
C57 50V1
R67 22K
R92 15K
R66 33K
C56 50V1
C35 50V1
R33 22K
R32 47K
Tone Selector
Q5
Q3
Q4
R91 100K
R90 47K
C69 50V1
R89 100K
R88 47K
Piano, Electric Piano, Guitar, Banjo, Clavi, Jazz Guitar
Harpsichord
C13 0.0015
R95 82K
R1 100K
R73 1M
R75 1M
R74 1M
C80 0.047
C82 0.047
C81 0.047
IC15-1
(2) PPO
OPS (PPO)
(1,3) E
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
RP0
RP1
RP2
RP3
RP4
RP5
RP6
RP7
WP0
WP1
WP2
WP3
WP4
WP5
WP6
WP7
R50 390
R52 390
R54 390
R56 390
R58 390
R60 390
R62 390
R64 390
R35 390
R37 390
R39 390
R41 390
R43 390
R45 390
R47 390
R49 390
R51 150
R53 150
R55 150
R57 150
R59 150
R61 150
R63 150
R65 150
R34 47K
R36 47K
R38 47K
R40 47K
R42 47K
R44 47K
R46 47K
R48 47K
C40 0.001
C42 0.001
C44 0.001
C46 0.001
C48 0.001
C50 0.001
C52 0.001
C54 0.001
C41 0.0047
C43 0.0047
C45 0.0047
C47 0.0047
C49 0.0047
C51 0.0047
C53 0.0047
C55 0.0047
C58 6V47
C59 0.047
C60 0.047
C61 0.047
C62 0.047
C63 0.047
C64 0.047
C65 6V47
Analog Buffer Memory Block
RES (60)
IOSB (56)
AB0 (59)
DB7 (68)
DB6 (67)
DB5 (66)
DB4 (65)
DB3 (64)
DB2 (63)
DB1 (62)
DB0 (61)
SAS
FC (58)
R72 1K
IC2
C70 100P
C71 22P
8MHz
X1
C72 33P
IC3
Digital Sound Processor
C84 0.047
R79 100K
IC6
D-A Converter
R93 2.2K
R94 1K
C73 6V47
C75 6V47
C74 0.047
C77 0.047
C76 0.047
IC4
Wave ROM
C79 0.047
Data Latch
IC1
(DB0)
(DB1)
(DB2)
①
②
③
④
⑤
⑥
⑧
⑪
⑫
⑬
⑭
⑮

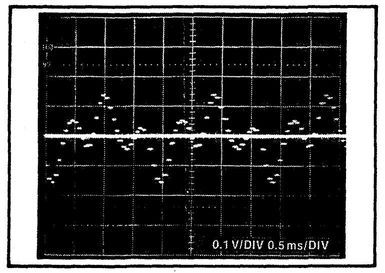
DSBA DIGITAL SOLO/BASS/ACCOMPANIMENT CIRCUIT BOARD

①

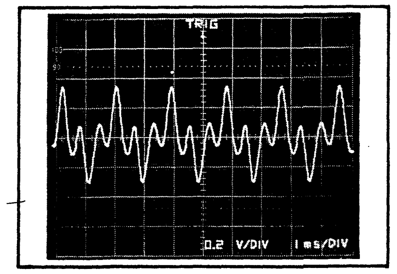


- U. Solo Presets..................Flute
- Upper Key............................C4

②

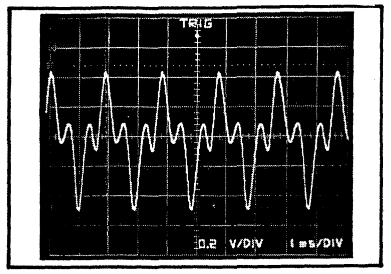


③ Solo Presets



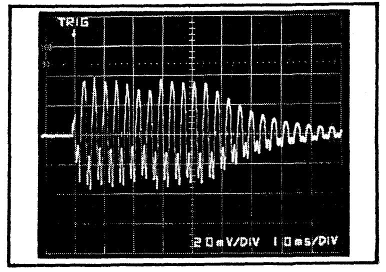
- U. Solo Presets..................Flute
- Upper Key............................C4

④ Solo Presets



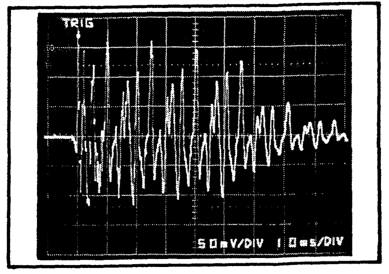
- U. Solo Presets..................Flute
- Harmonic Control...............Normal
- Upper Key............................C4

⑤ Rhythmic



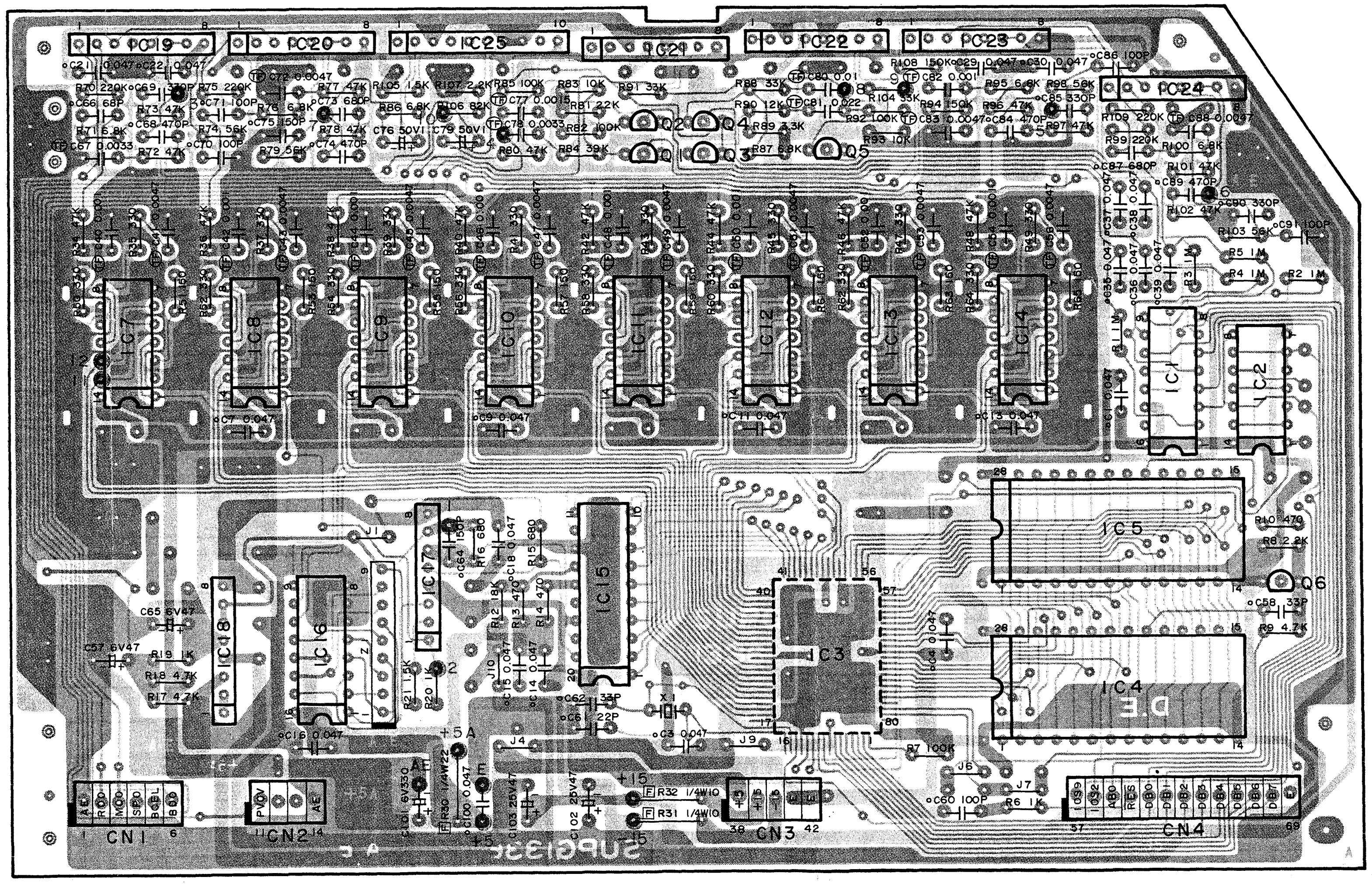
- Rhythm ....Samba
- Rhythmic ....Pattern I
- Lower Key C3

⑥ Melodic



- Rhythm ....8 beat
- Melodic.................................Pattern II
- Lower Key C3

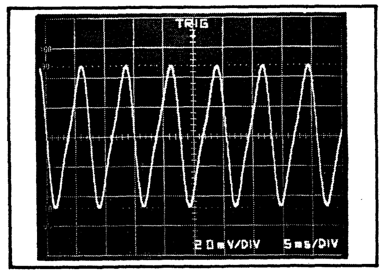
Circuit view on top of P.C.B


IC19
IC20
IC25
IC21
IC22
IC23
IC24
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC1
IC2
IC5
IC3
IC4
IC15
IC16
IC17
IC18
Q1
Q2
Q3
Q4
Q5
Q6
X1
J1
J4
J7
J9
+5A
+15
-15
+5
CN1
CN2
CN3
CN4
SUPG133C

SXPG133611

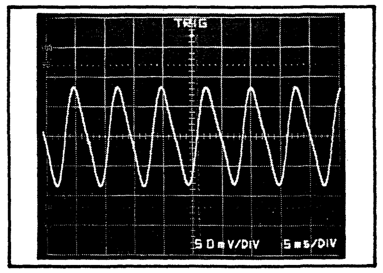
NOTES:
- IC'S
  - IC1: MN40174B
  - IC2: SVIGTC40H002
  - IC3: SVIGUPD6312
  - IC4: SVIG1000C098
  - IC5: SVIG1000C099
  - IC7~14: MN74HC4066
  - IC15: SVIGBA9221
  - IC16: MN74HC4051
  - IC17: SVIGM5238L
  - IC18~24: SVIGM5218L
  - IC25: SVIGM5241L
- TRANSISTORS
  - Q1~5: 2SJ40CD
  - Q6: 2SC1047C

⑦ Bass



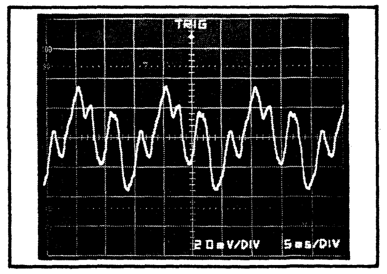
- Bass ....Bass 8′
- Pedal Key C2

⑧ Bass



- Bass ....Bass 8′
- EXP, Main Vol., Bass Vol......Max.
- Harmonic Control...............Normal
- Pedal Key C2

⑨ Bowed Bass



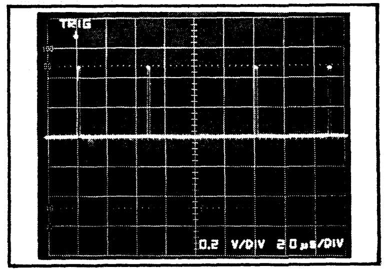
- Bass ....Bowed Bass
- EXP, Main Vol., Bass Vol......Max.
- Harmonic Control...............Normal
- Pedal Key C2

⑩ Bass Volume Control

Bass Volume	Bass 16′ Bass 8′	Bowed Bass Chopper Bass Tuba Synthe Bass Electric Bass Acoustic Bass
Step 1	−4.1V	−4.0V
Step 2	−3.6V	−3.4V
Step 3	−3.0V	−2.8V
Step 4	−2.4V	−2.3V

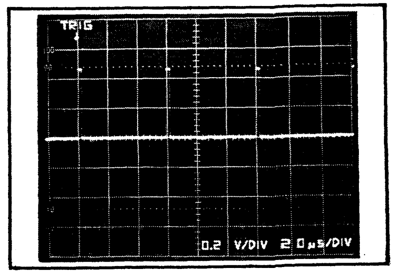
- Harmonic Control...............Normal
- Expression ....Max.
- Main Volume.......................step 1
- Bass Volume.......................step 1~4

⑪ WPO



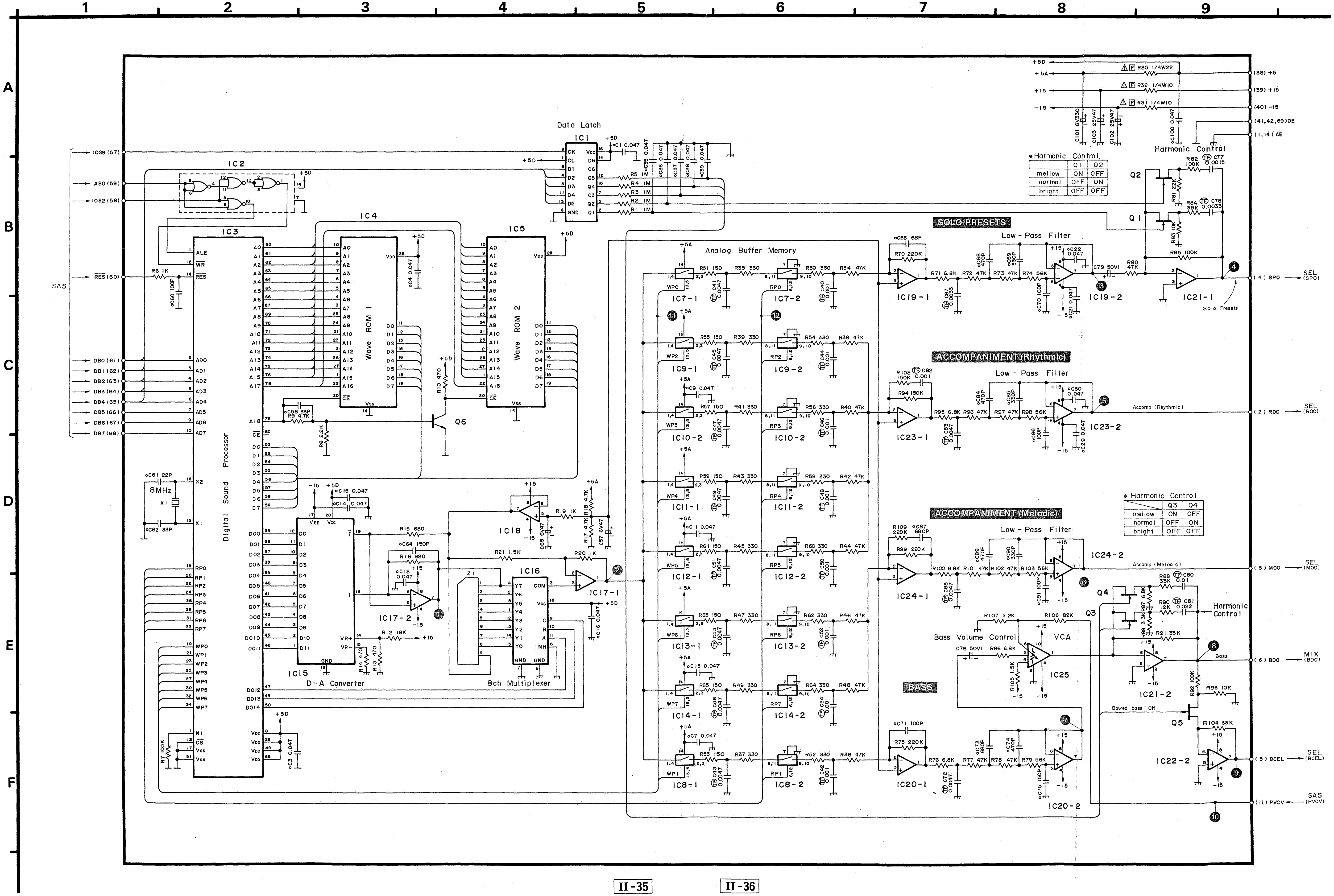
- U. Solo Presets..................ON
- Upper Key............................C4

⑫ RPO



- U. Solo Presets..................ON
- Upper Key............................C4

DIGITAL SOLO/BASS/ACCOMPANIMENT CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Data Latch
IC1
IC2
IC3
IC4
IC5
Wave ROM 1
Wave ROM 2
Digital Sound Processor
Q6
8MHz
X1
IC15
D-A Converter
IC16
8ch Multiplexer
Z1
IC17-1
IC17-2
IC18
Analog Buffer Memory
IC7-1
IC7-2
IC8-1
IC8-2
IC9-1
IC9-2
IC10-2
IC11-1
IC11-2
IC12-1
IC12-2
IC13-1
IC13-2
IC14-1
IC14-2
SOLO PRESETS
ACCOMPANIMENT (Rhythmic)
ACCOMPANIMENT (Melodic)
BASS
Low - Pass Filter
IC19-1
IC19-2
IC21-1
IC23-1
IC23-2
IC24-1
IC24-2
IC20-1
IC20-2
IC21-2
IC22-2
IC25
VCA
Bass Volume Control
Harmonic Control
Q1
Q2
Q3
Q4
Q5
Solo Presets
Accomp (Rhythmic)
Accomp (Melodic)
Bass
Bowed bass : ON
SAS
IOS9 (57)
AB0 (59)
IOS2 (58)
RES (60)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
(38) +5
(39) +15
(40) -15
(41,42,69) DE
(1,14) AE
(4) SP0
SEL (SP0)
(2) R00
SEL (R00)
(3) M00
SEL (M00)
(6) BD0
MIX (BD0)
(5) BCEL
SEL (BCEL)
(11) PVCV
SAS (PVCV)
R30 1/4W22
R32 1/4W10
R31 1/4W10

● Harmonic Control

	Q1	Q2
mellow	ON	OFF
normal	OFF	ON
bright	OFF	OFF

● Harmonic Control

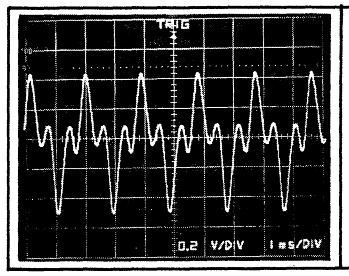
	Q3	Q4
mellow	ON	OFF
normal	OFF	ON
bright	OFF	OFF

SEL SELECTOR CIRCUIT BOARD

1 2 3 4 5 6 7 8 9

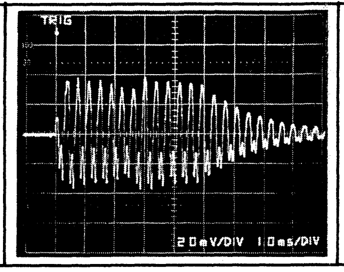
A B C D E F

❶ Solo Presets



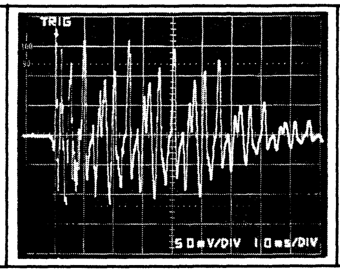
- U. Solo Presets..................Flute
- Harmonic Control..............Normal
- Upper Key...........................C4

❷ Rhythmic Orchestra



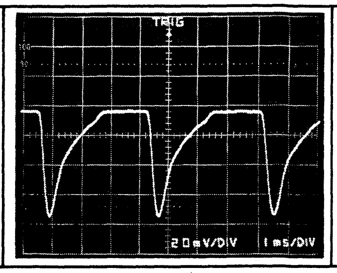
- Rhythm ....Samba
- Rhythmic ....Pattern I
- Lower Key C3

❸ Melodic Orchestra



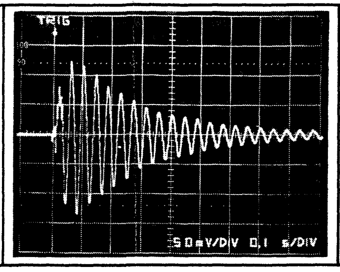
- Rhythm ....8 beat
- Melodic...............................Pattern II
- Lower Key C3

❹ Orchestral Presets



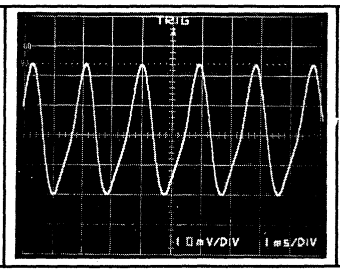
- U. Orchestral Presets ....Trombone
- Harmonic Control..............Normal
- Upper Key...........................C4

❺ Percussive Presets



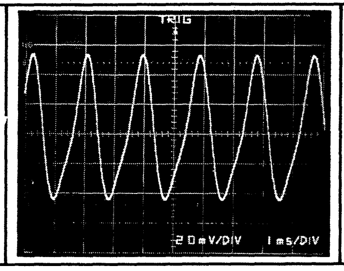
- U. Percussive Presets........Piano
- Harmonic Control..............Normal
- Upper Key...........................C4
- Sustain ....Short

❻ Lower Tab Voices



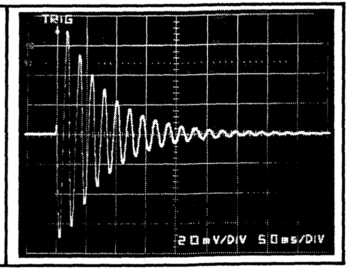
- Lower Tab Voices ....Flute 8′
- Lower Key C4

❼ Upper Tab Voices



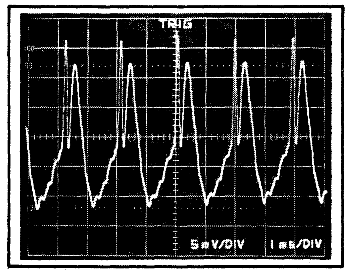
- Upper Tab Voices..............Flute 8′
- Upper Key...........................C4

❽ Percussive Tone



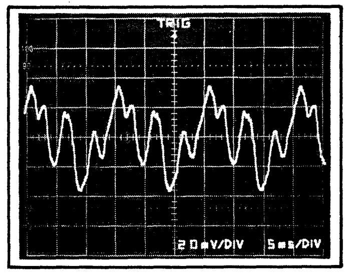
- Percussive Tone.................4′
- Upper Key...........................C4
- Envelope.............................Short

❾, ❿, ⓫



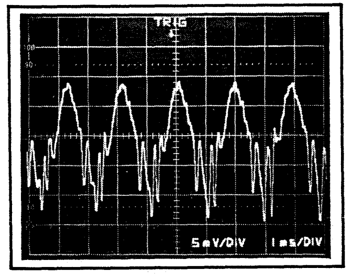
- U. String Ensemble...........Violin
- Volume...step 4 • Upper Key...C4

⓬

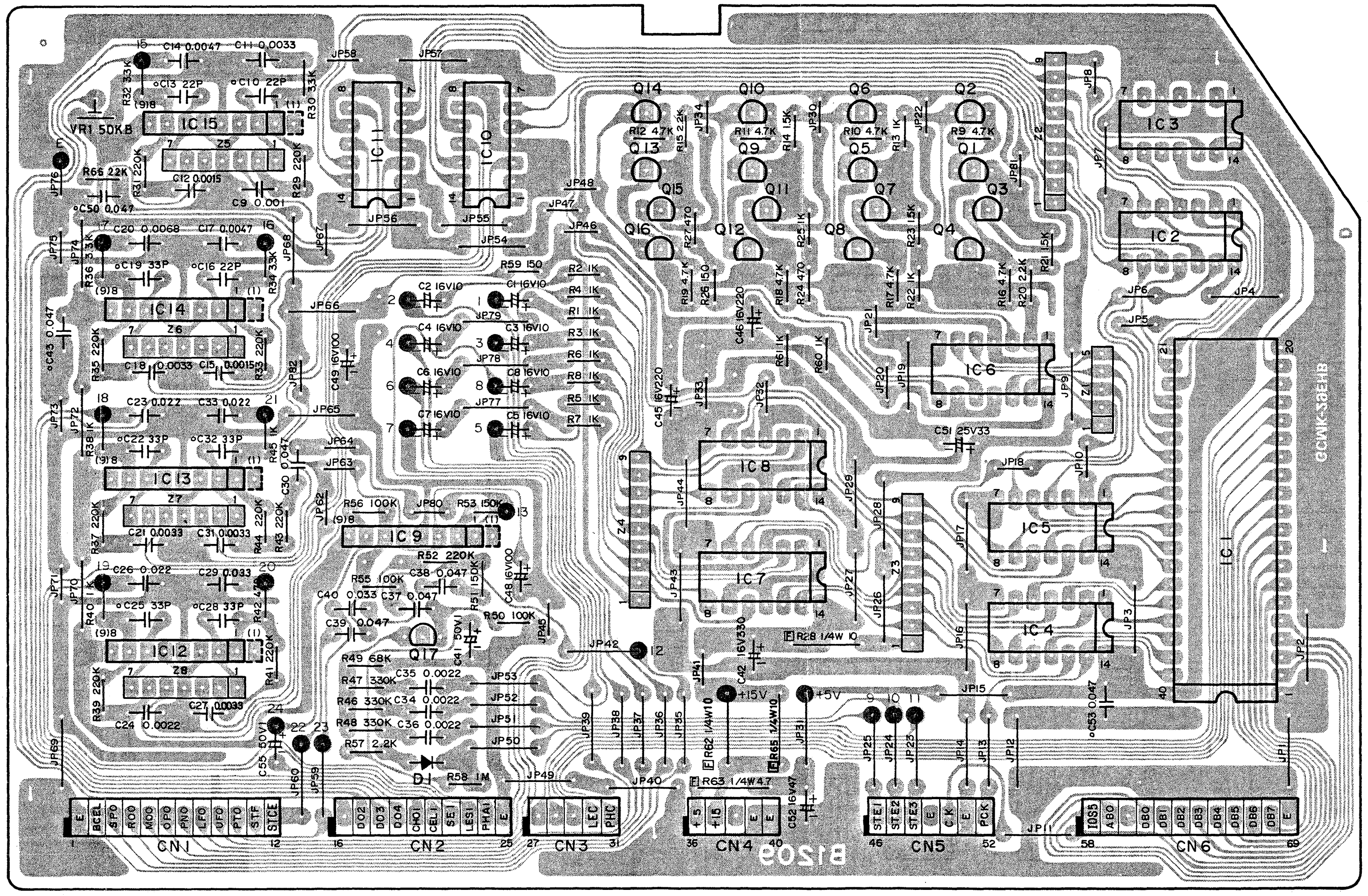


- Bass....................................Bowed Bass
- EXP, Main Vol., Bass Vol......Max.
- Harmonic Control..............Normal
- Pedal Key C2

⓭



- U. String Ensemble...........Violin
- Volume...step 4 • Upper Key...C4

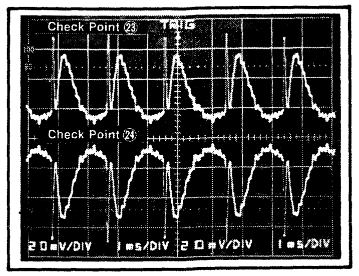

IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
VR1 50KB
D1
Z1
Z2
Z3
Z4
Z5
Z6
Z7
Z8
+15V
+5V
CN1
CN2
CN3
CN4
CN5
CN6
B1209
E
BCEL
SPO
ROO
HOO
OPO
PNO
LFO
OFO
PTO
STF
STCE
DO2
DO3
DO4
CHO1
CEL1
SE1
LES1
PHA1
LEC
PHC
+5
+15
STE1
STE2
STE3
CK
PCK
IOS5
A90
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7

SXPG120951B

NOTES:

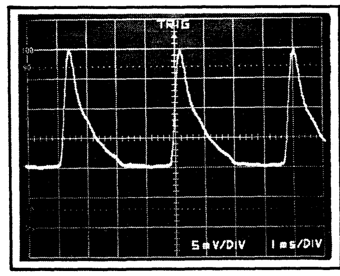
- IC'S
  - IC1: SVIG65002018
  - IC2~5: SVIGM53217
  - IC6~8, 10, 11: SVIGUPD4066B
  - IC9, 12~15: SVIGM5218L
- TRANSISTORS
  - Q1, 4, 5, 8, 9, 12, 13, 16: 2SA1015GR
  - Q2, 3, 6, 7, 10, 11, 14, 15: 2SC1815GR
  - Q17: 2SJ40CD

㉓, ㉔



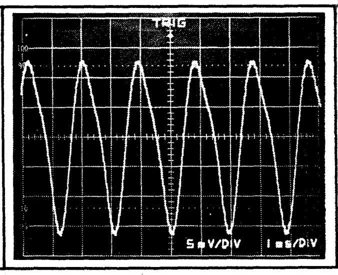
- U. String Ensemble............Violin
- Volume................................step 4
- Upper Key............................C4

⓯ Direct 2



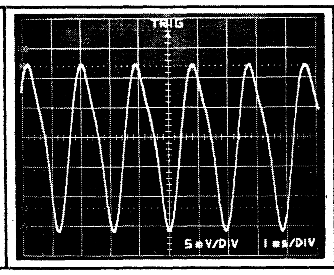
- U. Orchestral Presets ....Trombone
- Volume.................................step 4
- Harmonic Control..............Normal
- Upper Key...........................C4

⓰ Direct 3



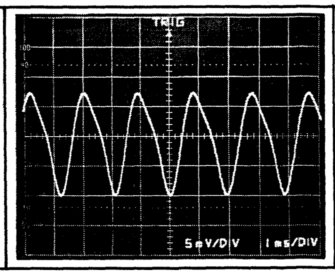
- Upper Tab Voices..............Flute 8′
- Volume.................................step 4
- Upper Key...........................C4

⓱ Vibrato



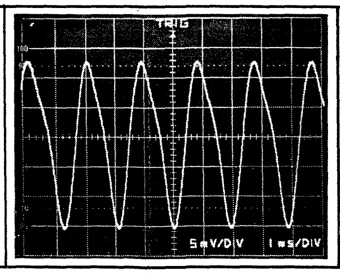
- Upper Tab Voices..............Flute 8′
- Vibrato ....U. Tab Voices
- Volume.................................step 4
- Upper Key...........................C4

⓲ Chorus



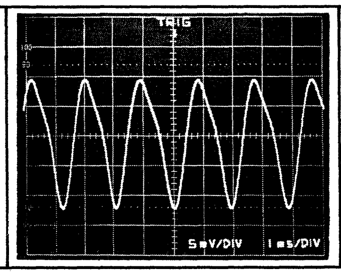
- Upper Tab Voices..............Flute 8′
- Chorus ....U. Tab ON
- Volume.................................step 4
- Upper Key...........................C4

⓳ Phaser



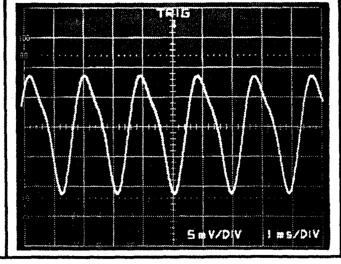
- Upper Tab Voices..............Flute 8′
- Phaser.................................U. Tab ON
- Volume.................................step 4
- Upper Key...........................C4

⓴ Tremolo



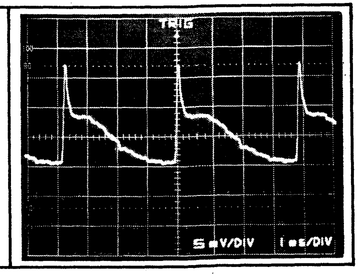
- Upper Tab Voices..............Flute 8′
- Tremolo ....U. Tab ON
- Volume.................................step 4
- Upper Key...........................C4

㉑ Celeste



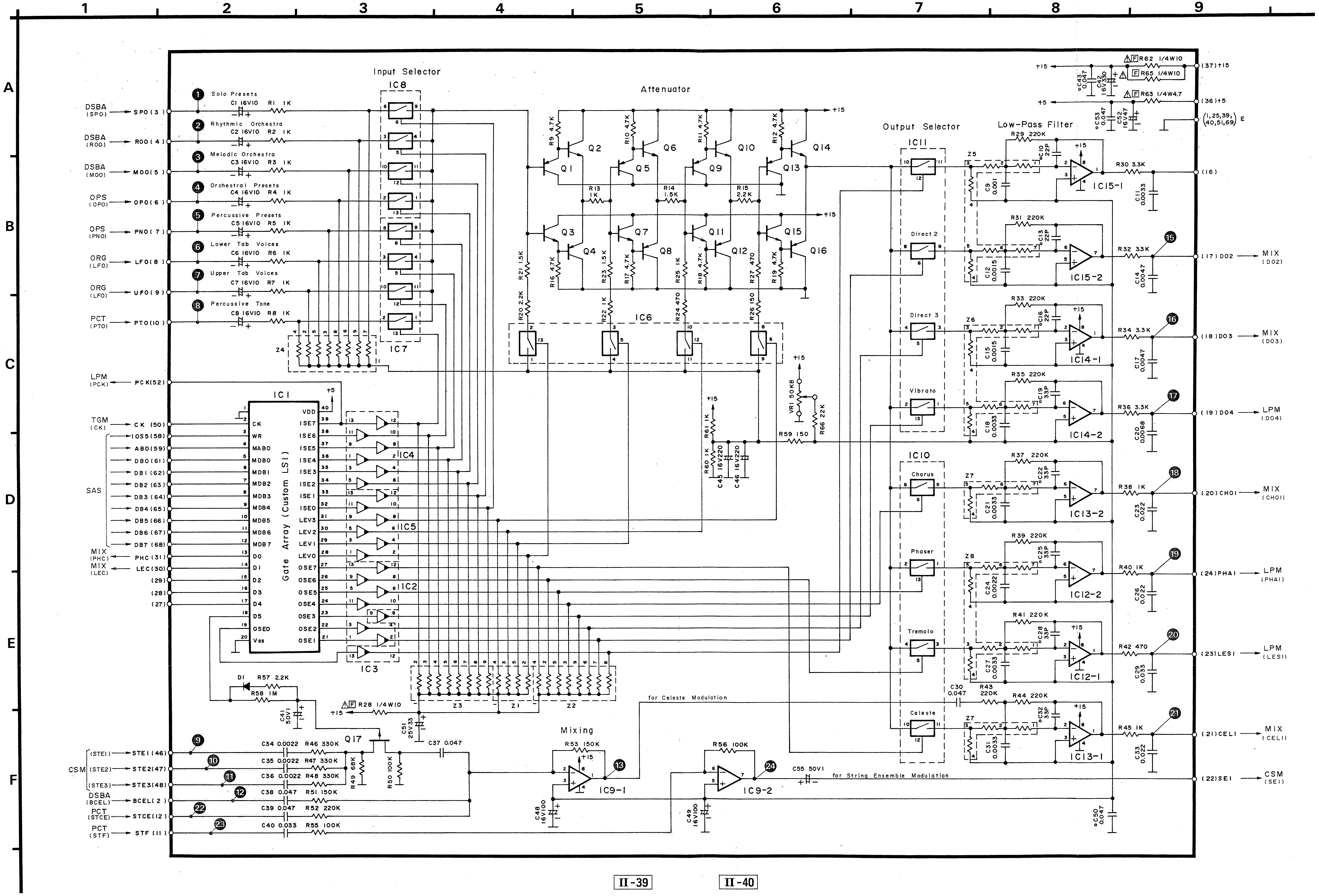
- Upper Tab Voices..............Flute 8′
- Celeste................................U. Tab ON
- Volume.................................step 4
- Upper Key...........................C4

㉒



- U. String Ensemble............Cello
- Volume................................step 4
- Upper Key............................C4

SEL SELECTOR CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Input Selector
IC8
IC7
Attenuator
Output Selector
IC11
IC10
Low-Pass Filter
Mixing
Solo Presets
Rhythmic Orchestra
Melodic Orchestra
Orchestral Presets
Percussive Presets
Lower Tab Voices
Upper Tab Voices
Percussive Tone
DSBA (SPO) SPO(3)
DSBA (ROO) ROO(4)
DSBA (MOO) MOO(5)
OPS (OPO) OPO(6)
OPS (PNO) PNO(7)
ORG (LFO) LFO(8)
ORG (LFO) UFO(9)
PCT (PTO) PTO(10)
LPM (PCK) PCK(52)
TGM (CK) CK (50)
IOSS(58)
ABO(59)
DBO(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
SAS
MIX (PHC) PHC(31)
MIX (LEC) LEC(30)
(29)
(28)
(27)
IC1
Gate Array (Custom LSI)
VDD
Vss
CK
WR
MABO
MDBO
MDB1
MDB2
MDB3
MDB4
MDB5
MDB6
MDB7
DO
D1
D2
D3
D4
D5
OSEO
ISE7
ISE6
ISE5
ISE4
ISE3
ISE2
ISE1
ISEO
LEV3
LEV2
LEV1
LEVO
OSE7
OSE6
OSE5
OSE4
OSE3
OSE2
OSE1
IC4
IC5
IC2
IC3
Z4
Z3
Z1
Z2
IC6
C1 16V10 R1 1K
C2 16V10 R2 1K
C3 16V10 R3 1K
C4 16V10 R4 1K
C5 16V10 R5 1K
C6 16V10 R6 1K
C7 16V10 R7 1K
C8 16V10 R8 1K
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
R9 4.7K
R10 4.7K
R11 4.7K
R12 4.7K
R13 1K
R14 1.5K
R15 2.2K
R16 4.7K
R17 4.7K
R18 4.7K
R19 4.7K
R20 2.2K
R21 1.5K
R22 1K
R23 1.5K
R24 470
R25 1K
R26 150
R27 470
VR1 50KB
R66 22K
R61 1K
R60 1K
R59 150
C45 16V220
C46 16V220
D1 R57 2.2K
R58 1M
C41 50V1
R28 1/4W10
C51 25V33
Q17
C37 0.047
Direct 2
Direct 3
Vibrato
Chorus
Phaser
Tremolo
Celeste
Z5
Z6
Z7
Z8
R29 220K
C10 22P
C9 0.001
IC15-1
R30 3.3K
C11 0.0033
R31 220K
C13 22P
C12 0.0015
IC15-2
R32 33K
C14 0.0047
R33 220K
C16 22P
C15 0.0015
IC14-1
R34 3.3K
C17 0.0047
R35 220K
C19 33P
C18 0.0033
IC14-2
R36 3.3K
C20 0.0068
R37 220K
C22 33P
C21 0.0033
IC13-2
R38 1K
C23 0.022
R39 220K
C25 33P
C24 0.0022
IC12-2
R40 1K
C26 0.022
R41 220K
C28 33P
C27 0.0033
IC12-1
R42 470
C29 0.033
C30 0.047
R43 220K
R44 220K
C32 33P
C31 0.0033
IC13-1
R45 1K
C33 0.022
C50 0.047
R62 1/4W10
R65 1/4W10
R63 1/4W4.7
C43 0.047
C42 16V330
C53 0.047
C52 16V47
+15
+5
(37)+15
(36)+5
(1,25,39,40,51,69) E
(16)
(17) DO2 MIX (DO2)
(18) DO3 MIX (DO3)
(19) DO4 LPM (DO4)
(20) CHO1 MIX (CHO1)
(24) PHA1 LPM (PHA1)
(23) LES1 LPM (LES1)
(21) CEL1 MIX (CEL1)
(22) SE1 CSM (SE1)
for Celeste Modulation
for String Ensemble Modulation
R53 150K
IC9-1
C48 16V100
R56 100K
IC9-2
C49 16V100
C55 50V1
CSM
(STE1) STE1(46)
(STE2) STE2(47)
(STE3) STE3(48)
DSBA (BCEL) BCEL(2)
PCT (STCE) STCE(12)
PCT (STF) STF(11)
C34 0.0022 R46 330K
C35 0.0022 R47 330K
C36 0.0022 R48 330K
C38 0.047 R51 150K
C39 0.047 R52 220K
C40 0.033 R55 100K
R49 68K
R50 100K
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑮
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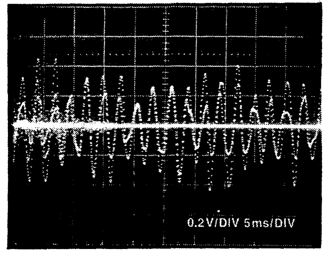
DP DRUM PERCUSSION CIRCUIT BOARD

❶

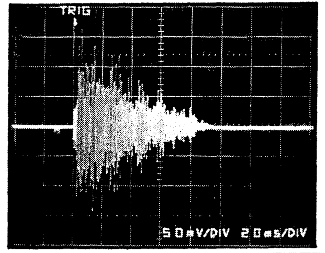


- Rhythm ....Rumba
- Tempo .... ♩=120

❷

- Symbal
- Snare drum
- Shaker
- Tambourine
- Agogo bell
- Cowbell

• Tambourine

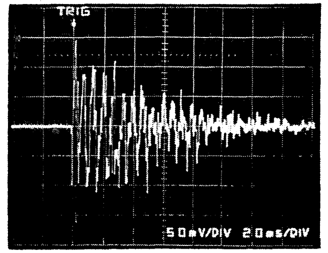


- Record ....ON • R. Composer I ....ON
- Tambourine..........ON • Lower Key ....ON

❸

- Closed hi-hat
- Open hi-hat
- Snare drum
- Agogo bell
- Cowbell

• Snare Drum

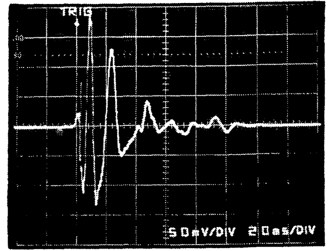


- Record ....ON • R. Composer I ....ON
- Snare Drum..........ON • Lower Key ....ON

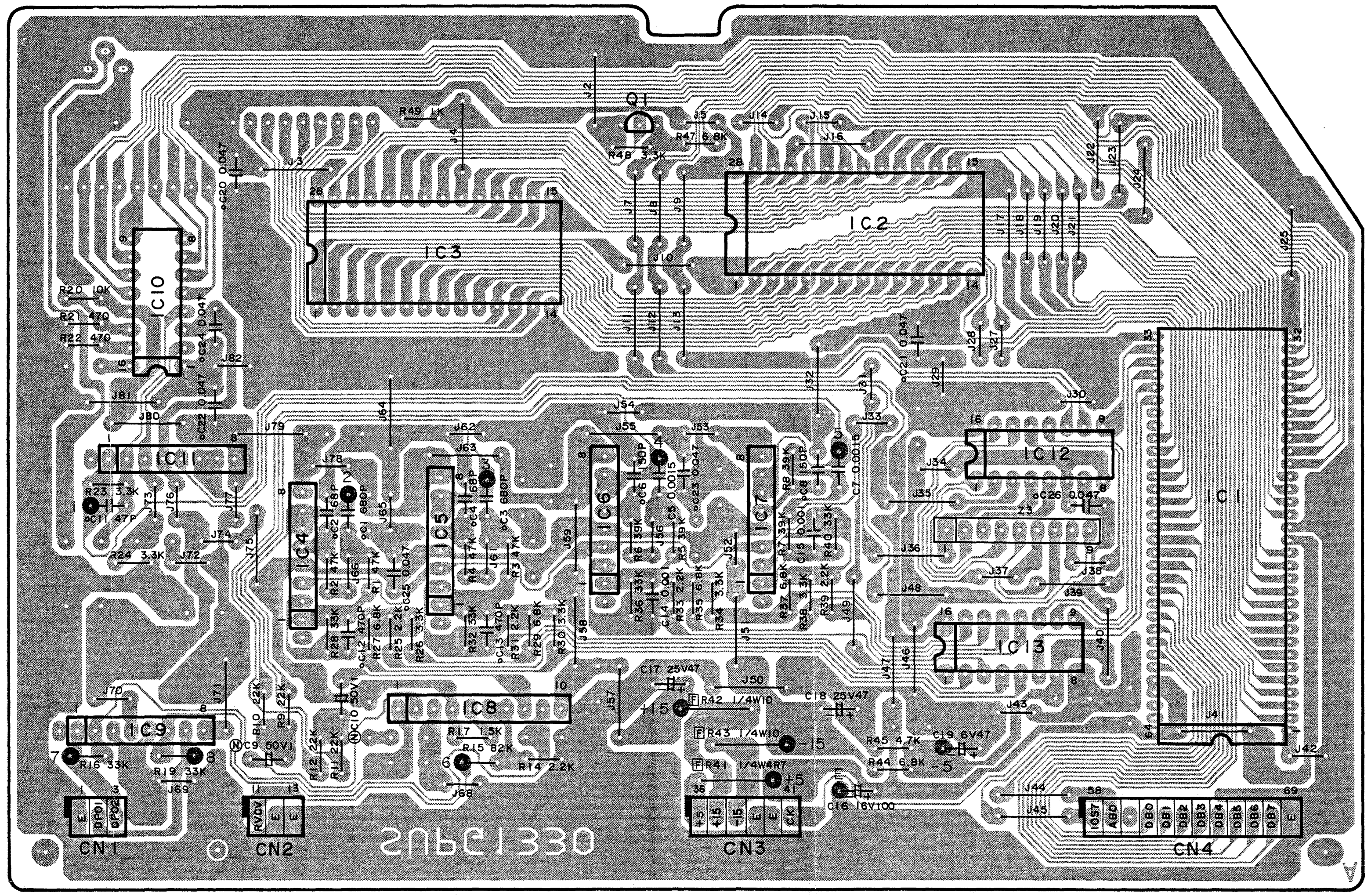
❹

- Tom-tom
- Rim shot
- Bass drum
- Hand clap
- Conga

• Bass Drum



- Record ....ON • R. Composer I ....ON
- Bass Drum ....ON • Lower Key ....ON



SXPG133011

NOTES:

- IC'S

IC1:	MN50015PGQ
IC2:	SVIG1000C061
IC3:	SVIG1000C062
IC4~7, 9:	SVIGM5218L
IC8:	SVIGM5241L
IC10:	SVIGHA17008P
IC11:	SVIGM5238L
IC12, 13:	SVIGHD14051B

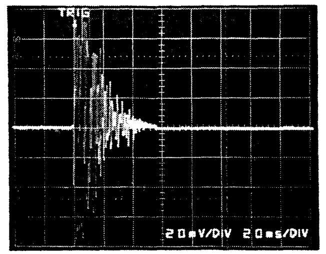
- TRANSISTOR

Q1:	2SC1047C

❺

- Tom-tom
- Rim shot
- Bass drum
- Hand clap
- Bongo

• Bongo



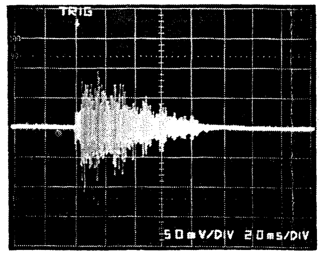
- Record ....ON • R. Composer I ....ON
- Bongo ....ON • Lower Key ....ON

❻

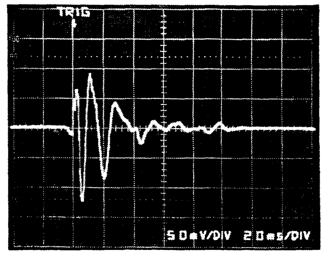
• Rhythm Volume Control	
step 1	−4.2V
step 2	−3.6V
step 3	−3.0V
step 4	−2.5V

- Expression ....Max.
- Main Volume......................step 1
- Rhythm Volume.................step 1~4

❼ Tambourine

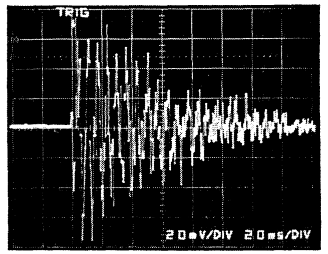


• Bass Drum

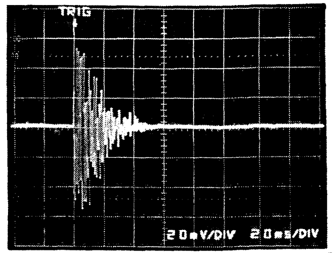


- Expression ....Max.
- Main Volume......................step 4
- Rhythm Volume.................step 4

❽ Snare Drum

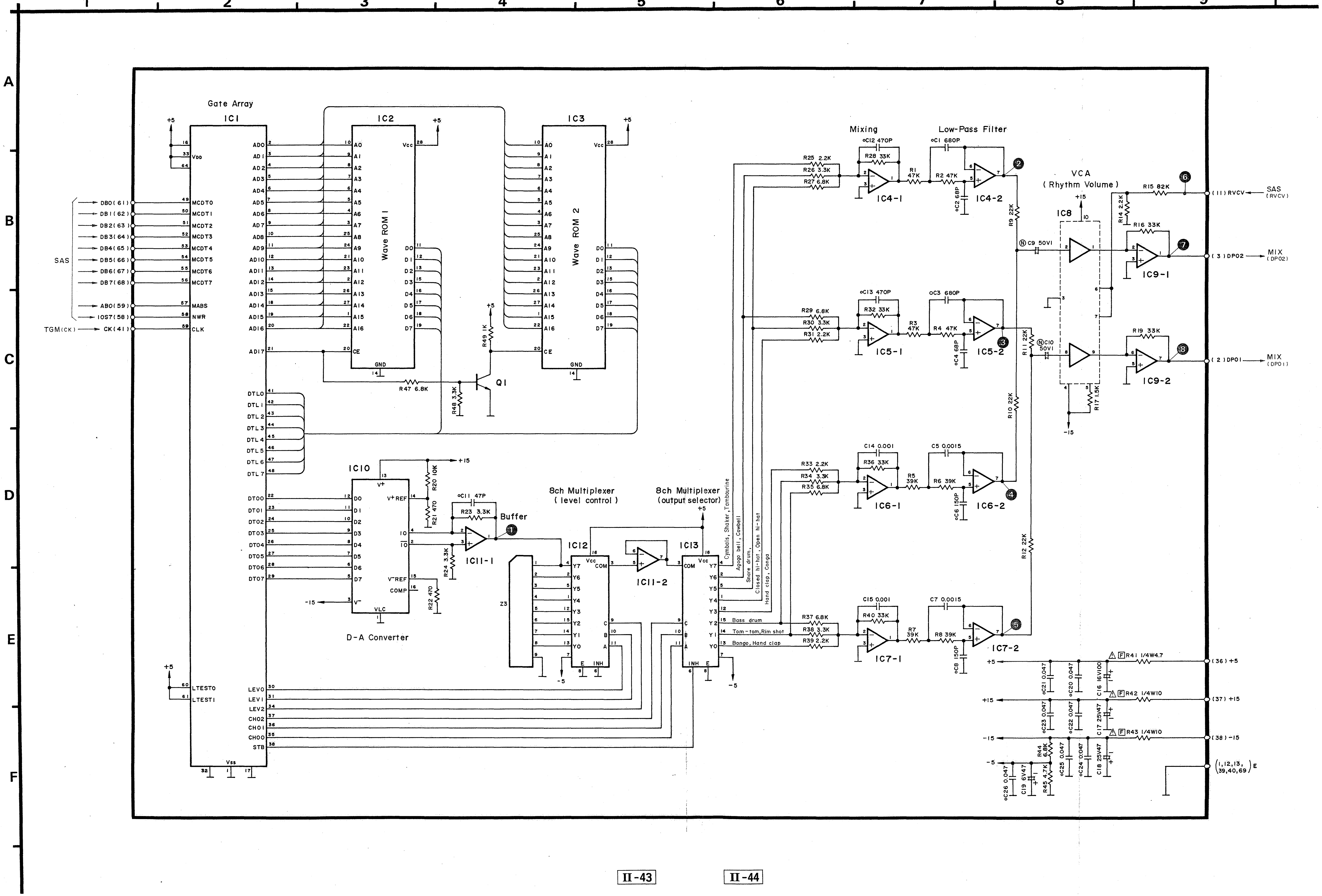


• Bongo



- Expression ....Max.
- Main Volume......................step 4
- Rhythm Volume.................step 4

DP DRUM PERCUSSION CIRCUIT DIAGRAM


Gate Array
IC1
IC2
IC3
Wave ROM 1
Wave ROM 2
Q1
R47 6.8K
R48 3.3K
R49 1K
SAS
TGM(CK)
DB0(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
AB0(59)
IOS7(58)
CK(41)
IC10
D-A Converter
R20 10K
R21 470
R22 470
R23 3.3K
R24 3.3K
C11 47P
Buffer
IC11-1
IC11-2
8ch Multiplexer
(level control)
8ch Multiplexer
(output selector)
IC12
IC13
Z3
Cymbals, Shaker, Tambourine
Agogo bell, Cowbell
Snare drum,
Closed hi-hat, Open hi-hat
Hand clap, Conga
Bass drum
Tom-tom, Rim shot
Bongo, Hand clap
Mixing
Low-Pass Filter
C12 470P
R28 33K
C1 680P
R25 2.2K
R26 3.3K
R27 6.8K
R1 47K
R2 47K
C2 68P
IC4-1
IC4-2
C13 470P
R32 33K
C3 680P
R29 6.8K
R30 3.3K
R31 2.2K
R3 47K
R4 47K
C4 68P
IC5-1
IC5-2
C14 0.001
R36 33K
C5 0.0015
R33 2.2K
R34 3.3K
R35 6.8K
R5 39K
R6 39K
C6 150P
IC6-1
IC6-2
C15 0.001
R40 33K
C7 0.0015
R37 6.8K
R38 3.3K
R39 2.2K
R7 39K
R8 39K
C8 150P
IC7-1
IC7-2
R9 22K
R10 22K
R11 22K
R12 22K
C9 50V1
C10 50V1
VCA
(Rhythm Volume)
IC8
R14 2.2K
R15 82K
R16 33K
R17 1.5K
R19 33K
IC9-1
IC9-2
(11) RVCV
SAS (RVCV)
(3) DP02
MIX (DP02)
(2) DP01
MIX (DP01)
R41 1/4W4.7
R42 1/4W10
R43 1/4W10
R44 6.8K
R45 4.7K
C16 16V100
C17 25V47
C18 25V47
C19 6V47
C20 0.047
C21 0.047
C22 0.047
C23 0.047
C24 0.047
C25 0.047
C26 0.047
(36) +5
(37) +15
(38) -15
(1,12,13,39,40,69) E
+5
+15
-15
-5

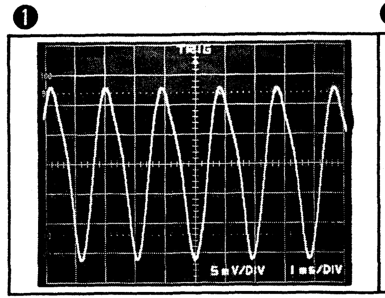
LPM

TREMOLO & PHASER MODULATION CIRCUIT BOARD

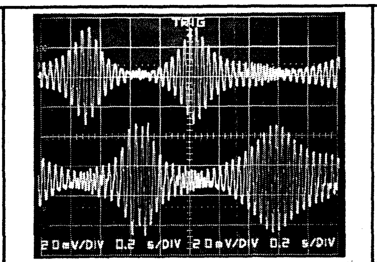
1 2 3 4 5 6 7 8 9

A

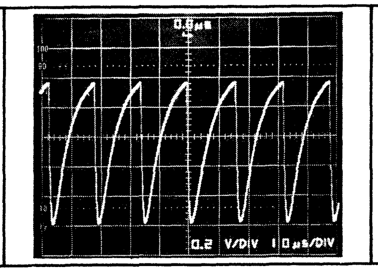
❶



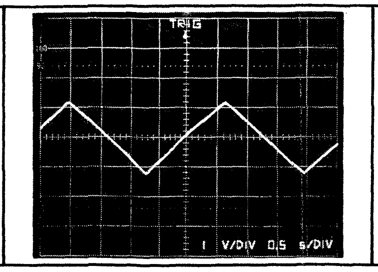
❷, ❸



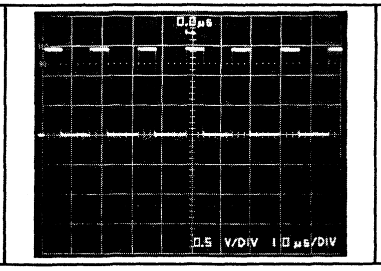
❹ 62.5kHz



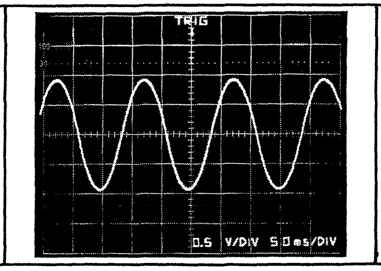
❺ 0.4Hz



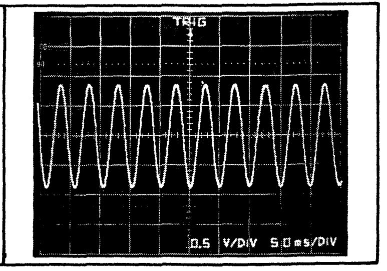
❻



❼ Vibrato: 6.6Hz



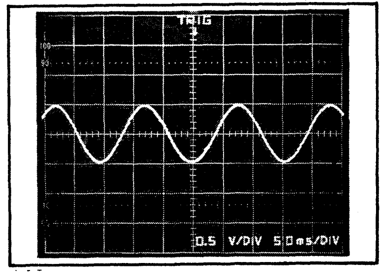
❼ Tremolo: Fast



- Upper Tab.............................Flute 8′
- Upper Volume......................step 4
- Phaser..................................U. Tab Voices
- Upper Key.............................C4

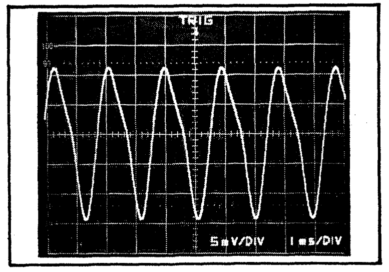
B

❾ Tremolo: Fast



C

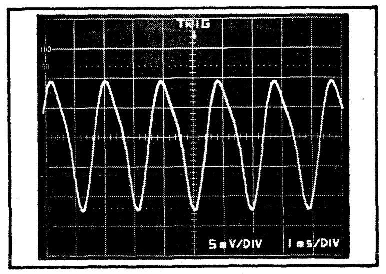
❿ Vibrato



- U. Tab Voices ....Flute 8′
- Vibrato..................................U. Tab Voices
- Volume...step 4 • UKB...C4

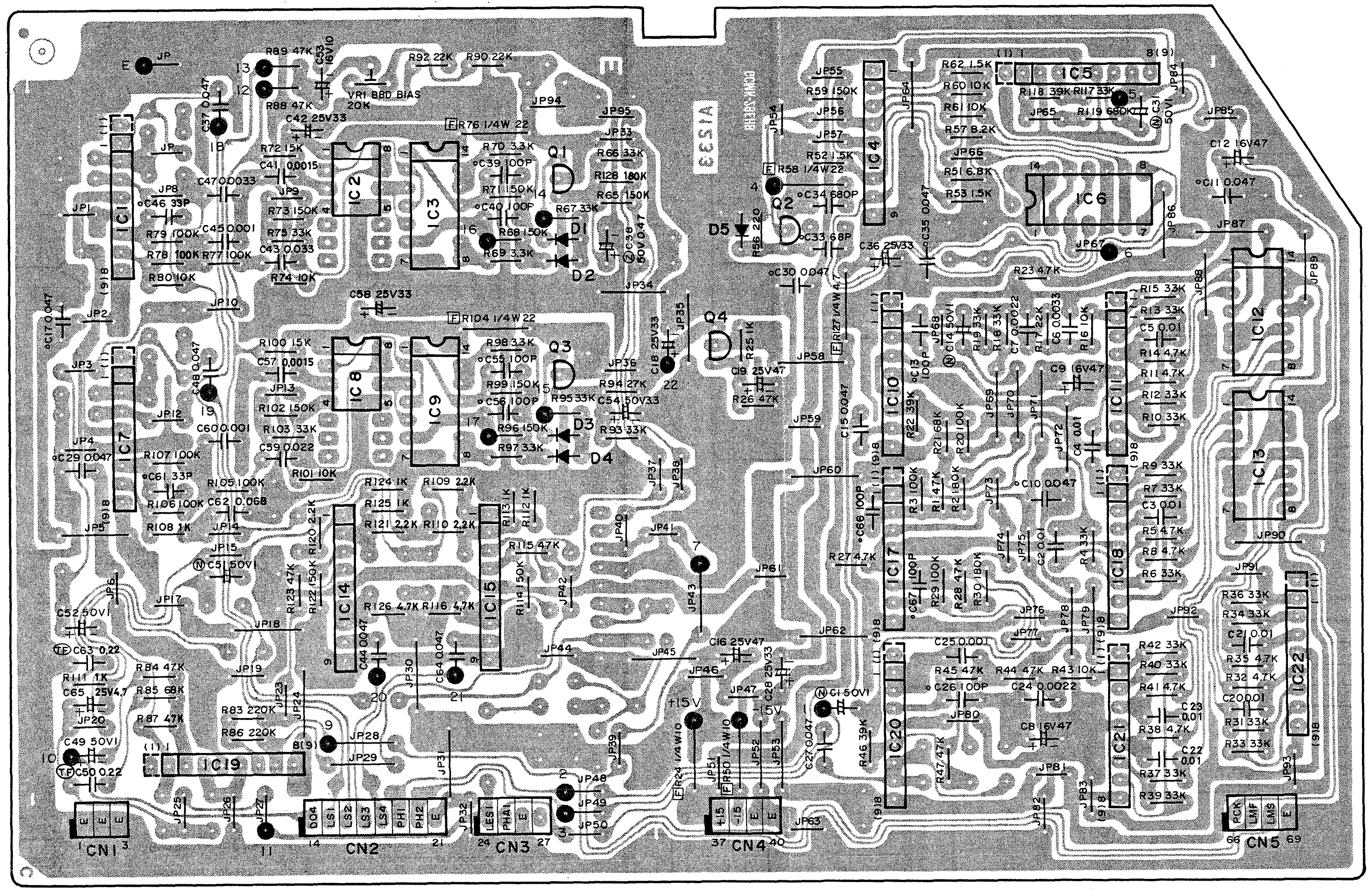
D

⓫ Tremolo



- U. Tab Voices ....Flute 8′
- Tremolo ....U. Tab (fast)
- Volume...step 4 • UKB...C4

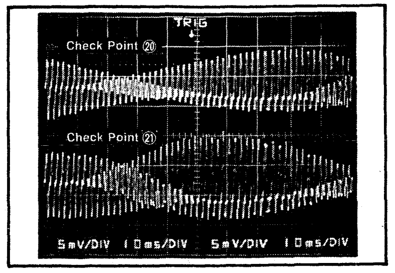
E


IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC17
IC18
IC19
IC20
IC21
IC22
Q1
Q2
Q3
Q4
D1
D2
D3
D4
D5
CN1
CN2
CN3
CN4
CN5
A1533
VR1 880 BIAS 20K
+15V

SXPG123321A

NOTES:
- IC'S
  - IC1, 5, 7, 10, 11, 17~22: SVIGM5218L
  - IC2, 8: MN3006
  - IC3, 6, 9: SVIGMSM4011
  - IC4: AN6913
  - IC12, 13: SVIGUPD4066B
  - IC14, 15: SVIGBA6110
- TRANSISTORS
  - Q1~4: 2SC2320LFG
- DIODES
  - D1~5: MA165TA5

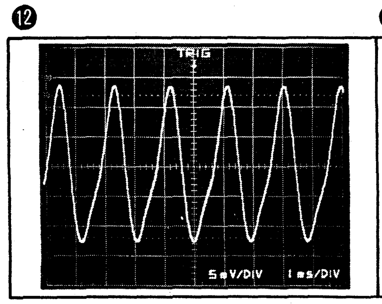
⑳, ㉑



- U. Tab Voices ....Flute 8′
- Tremolo ....U. Tab (fast)
- Volume...step 4 • UKB...C4

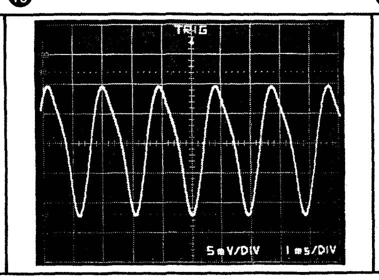
F

⓬



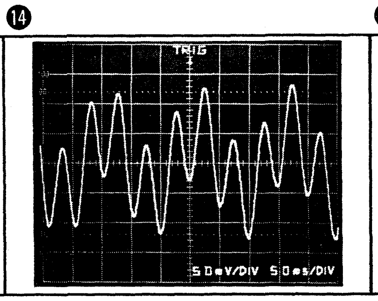
- U. Tab Voices ....Flute 8′
- Vibrato..................................U. Tab Voices
- Volume...step 4 • UKB...C4

⓭



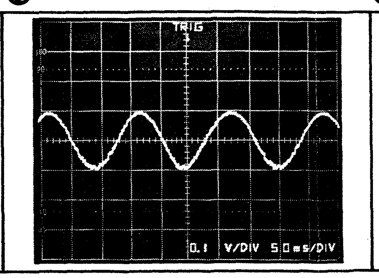
- U. Tab Voices ....Flute 8′
- Tremolo ....U. Tab (fast)
- Volume...step 4 • UKB...C4

⓮



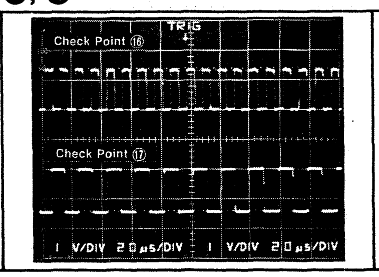
- Tremolo ....Fast

⓯



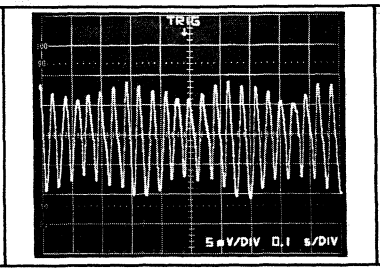
- Tremolo ....Fast

⓰, ⓱



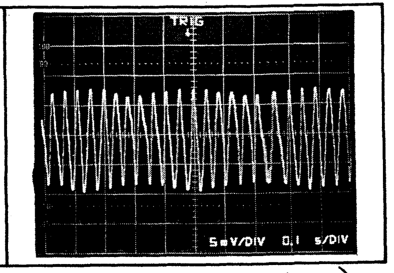
- Tremolo ....Fast

⓲



- U. Tab Voices ....Flute 8′
- Upper Key.............................C4

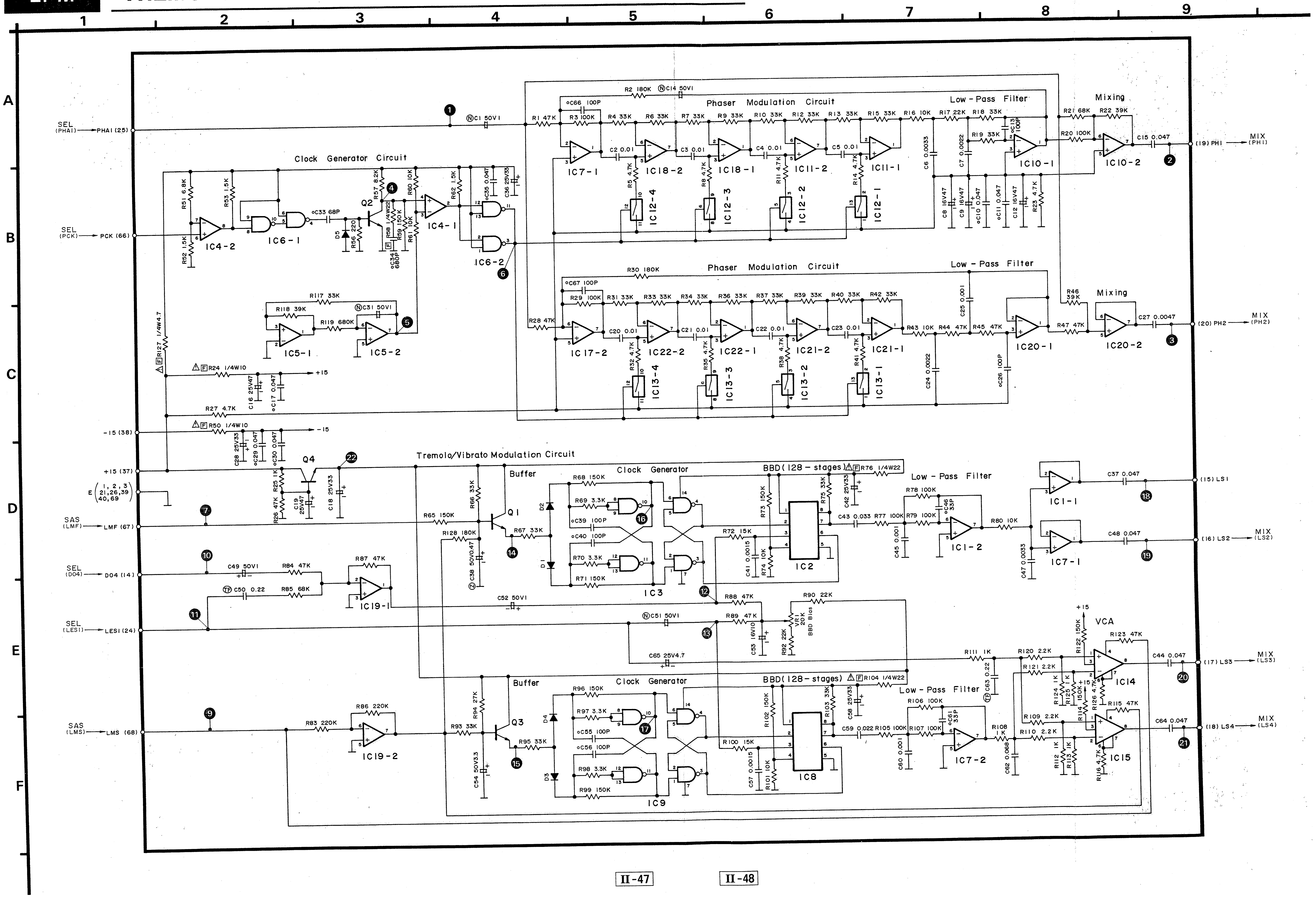
⓳



- Upper Volume.....................step 4
- Tremolo ....U. Tab (fast)

LPM

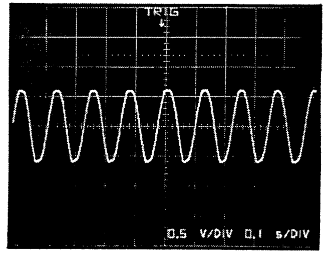
TREMOLO & PHASER MODULATION CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Phaser Modulation Circuit
Low-Pass Filter
Mixing
Clock Generator Circuit
Tremolo/Vibrato Modulation Circuit
Buffer
Clock Generator
BBD(128-stages)
VCA
SEL (PHA1) PHA1 (25)
SEL (PCK) PCK (66)
-15 (38)
+15 (37)
E (1, 2, 3, 21, 26, 39, 40, 69)
SAS (LMF) LMF (67)
SEL (D04) D04 (14)
SEL (LES1) LES1 (24)
SAS (LMS) LMS (68)
(19) PH1 MIX (PH1)
(20) PH2 MIX (PH2)
(15) LS1
(16) LS2 MIX (LS2)
(17) LS3 MIX (LS3)
(18) LS4 MIX (LS4)
+15
-15
IC7-1
IC18-2
IC18-1
IC11-2
IC11-1
IC10-1
IC10-2
IC12-4
IC12-3
IC12-2
IC12-1
IC4-2
IC6-1
IC4-1
IC6-2
Q2
IC5-1
IC5-2
IC17-2
IC22-2
IC22-1
IC21-2
IC21-1
IC20-1
IC20-2
IC13-4
IC13-3
IC13-2
IC13-1
Q4
Q1
IC3
IC2
IC1-1
IC1-2
IC7-1
IC19-1
VR1 20K BBD Bias
IC14
IC15
Q3
IC19-2
IC9
IC8
IC7-2
D1
D2
D3
D4
D5
R2 180K
C14 50V1
C1 50V1
C15 0.047
C27 0.0047
C37 0.047
C48 0.047
C44 0.047
C64 0.047
R76 1/4W22
R104 1/4W22
R127 1/4W4.7
R24 1/4W10
R50 1/4W10
①
②
③
④
⑤
⑥
⑦
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒

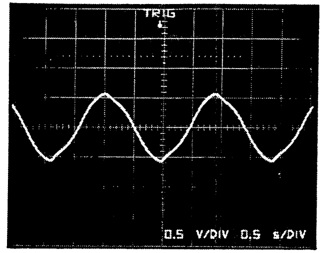
CELESTE & STRING ENSEMBLE CIRCUIT BOARD

1 2 3 4 5 6 7 8 9

❶ 8Hz

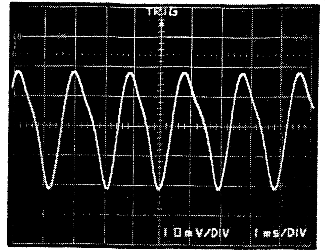


❷ 0.5Hz

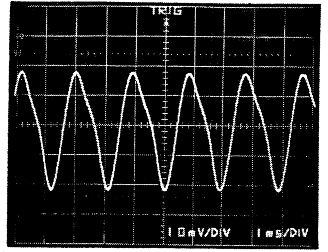


DC +14V

❹

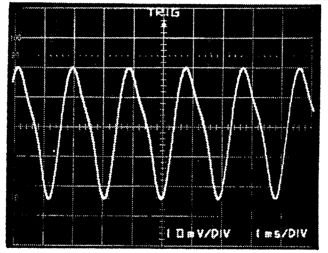


❺



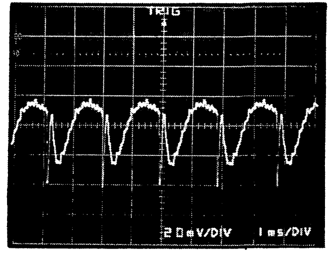
- Upper Tab Voices..............Flute 8′
- Upper Key..........................C4
- Upper Volume...................step 4
- Chorus ....U. Tab ON

❻

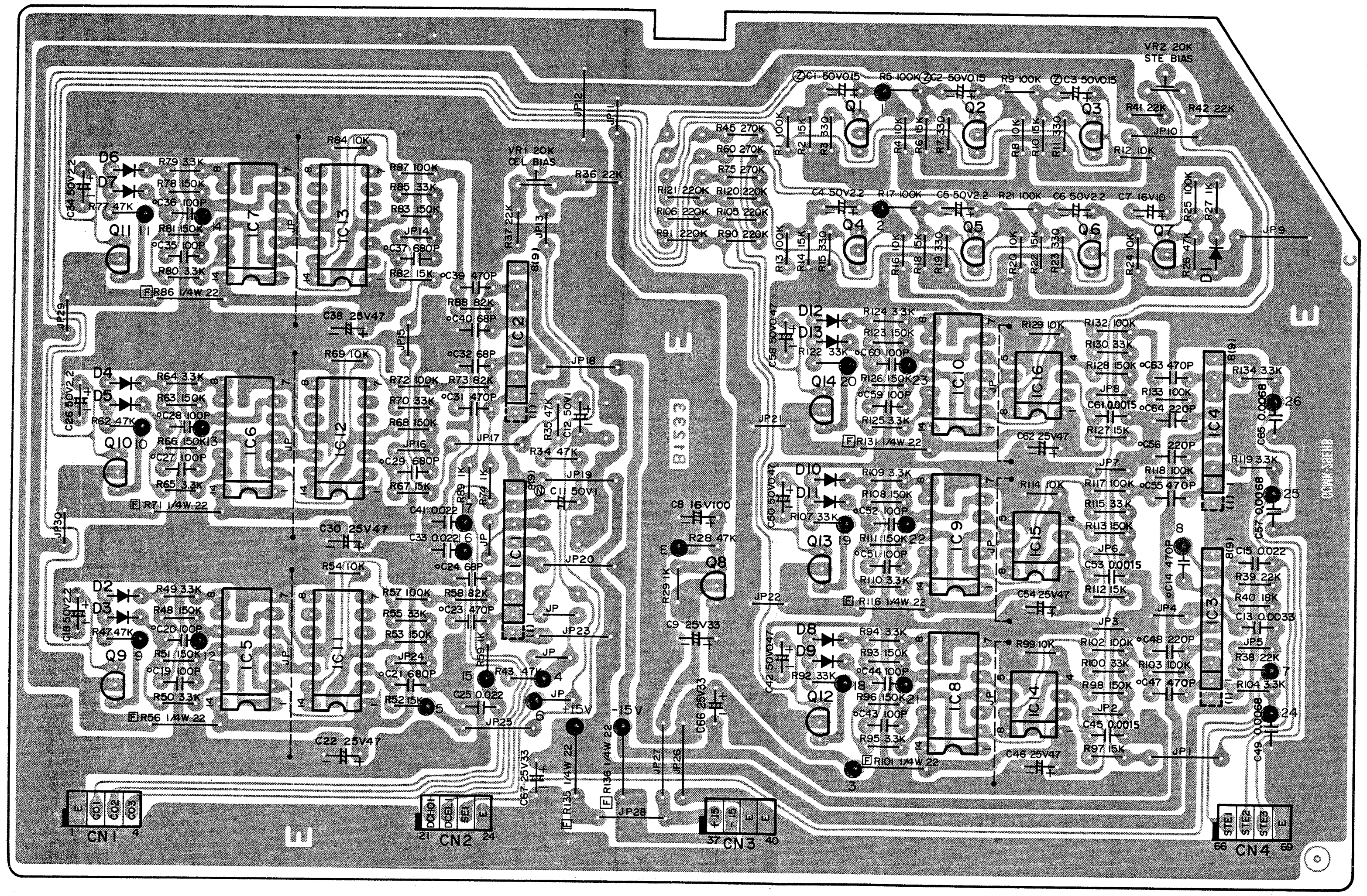


- Upper Tab...Flute 8′ • Volume...step 4
- Upper Key...C4 • Celeste...U. Tab ON

❼



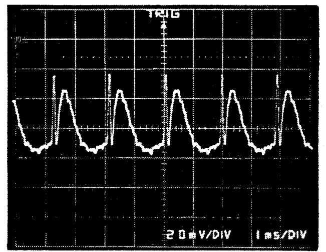
- U. String Ensemble...........Violin
- Volume................................step 4
- Upper Key...........................C4


VR2 20K STE BIAS
VR1 20K CEL BIAS
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14
IC1 IC2 IC3 IC4 IC5 IC6 IC7 IC8 IC9 IC10 IC11 IC12 IC13 IC14 IC15 IC16
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13
+15V
-15V
81533
E
CN1
CN2
CN3
CN4
STE1 STE2 STE3
CEL
GC1 GC2 GC3

SXPGB123321B

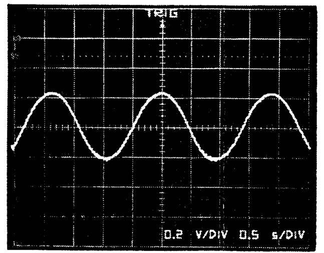
NOTES:
- IC'S
  - IC1~4: SVIGM5218L
  - IC5~10: SVIGMSM4011
  - IC11~13: MN3004
  - IC14~16: MN3006
- TRANSISTORS
  - Q1~14: 2SC2320LFG
- DIODES
  - D1~13: MA165TA5

❽

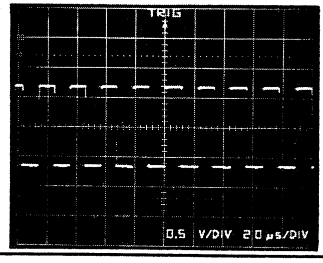


- U. String Ensemble...........Violin
- Volume................................step 4
- Upper Key...........................C4

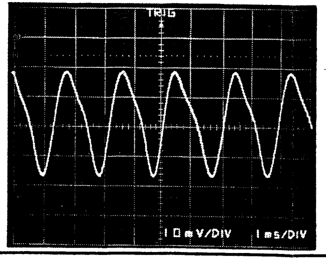
❾, ❿, ⓫ 0.5Hz



⓬, ⓭, ⓮

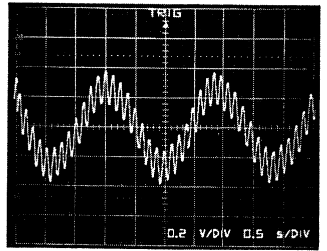


⓯, ⓰, ⓱ Celeste

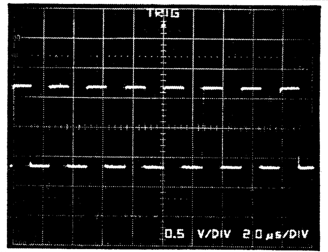


- Upper Tab...Flute 8′ • Volume...step 4
- Upper Key...C4 • Celeste...U. Tab ON

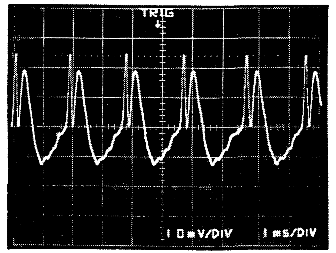
⓲, ⓳, ⓴



㉑, ㉒, ㉓

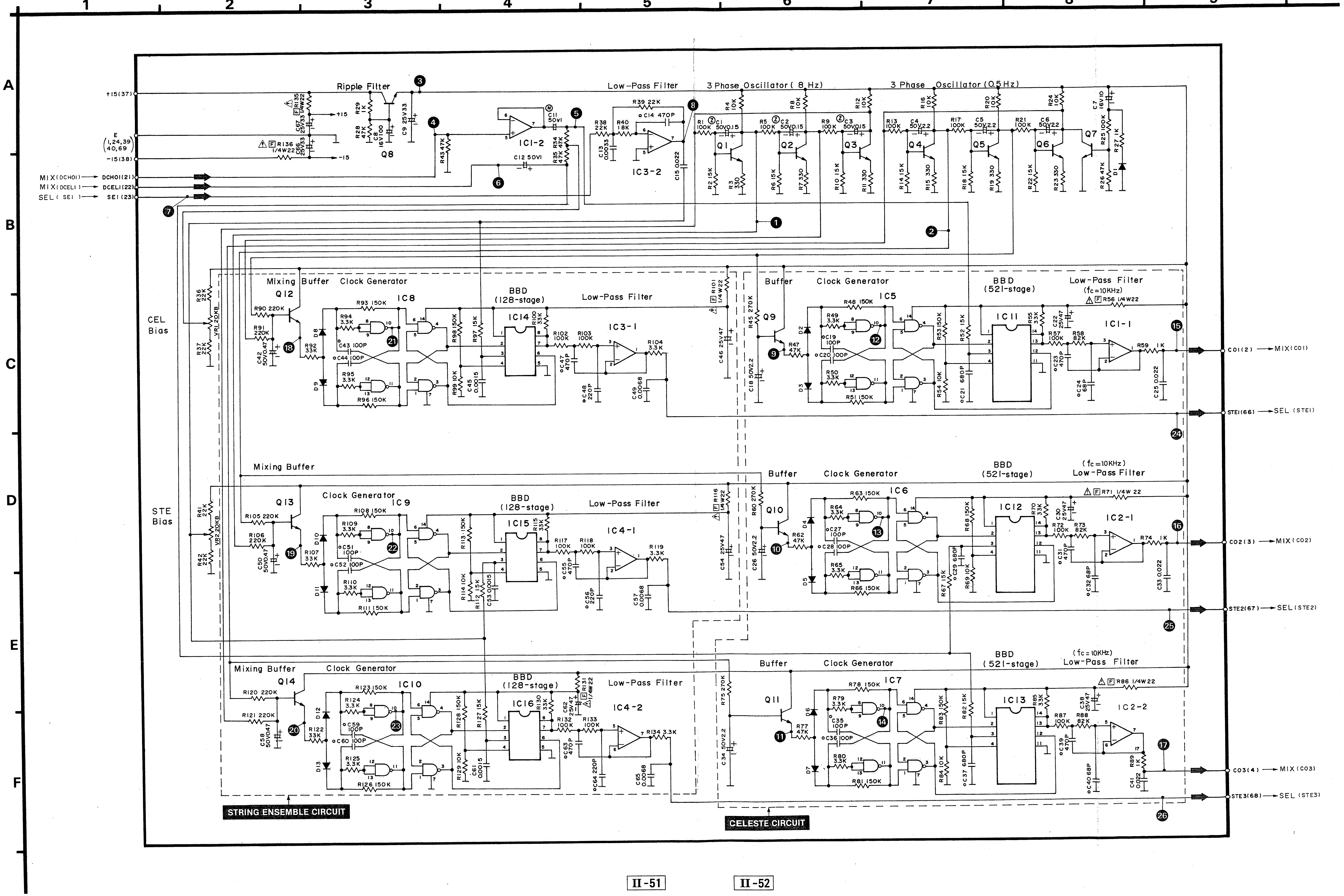


㉔, ㉕, ㉖



- U. String Ensemble...........Violin
- Volume................................step 4
- Upper Key...........................C4

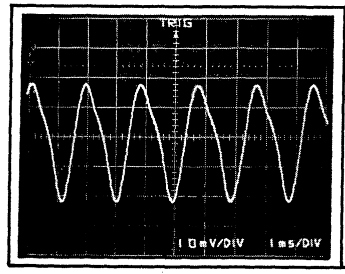
CSM CELESTE & STRING ENSEMBLE CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
+15(37)
E (1,24,39 40,69)
-15(38)
MIX(DCHO1) → DCHO1(21)
MIX(DCEL1) → DCEL1(22)
SEL(SE1) → SE1(23)
Ripple Filter
Q8
R135 1/4W22
R136 1/4W22
C67 25V33
C66 25V33
R29 1K
R28 47K
C8 16V100
C9 25V33
+15
-15
IC1-2
C11 50V1
R43 47K
R35 47K
R34 47K
C12 50V1
Low-Pass Filter
R39 22K
C14 470P
R38 22K
R40 18K
C13 0.0033
IC3-2
C15 0.022
3 Phase Oscillator (8 Hz)
3 Phase Oscillator (0.5 Hz)
R1 100K
C1 50V0.15
R4 10K
Q1
R2 15K
R3 330
R5 100K
C2 50V0.15
R8 10K
Q2
R6 15K
R7 330
R9 100K
C3 50V0.15
R12 10K
Q3
R10 15K
R11 330
R13 100K
C4 50V2.2
R16 10K
Q4
R14 15K
R15 330
R17 100K
C5 50V2.2
R20 10K
Q5
R18 15K
R19 330
R21 100K
C6 50V2.2
R24 10K
Q6
R22 15K
R23 330
C7 16V10
Q7
R25 100K
R27 1K
R26 47K
D1
STRING ENSEMBLE CIRCUIT
CELESTE CIRCUIT
CEL Bias
R36 22K
VR1 20KB
R37 22K
Mixing Buffer
Clock Generator
Q12
R90 220K
R91 220K
C42 50V0.47
R92 33K
IC8
R93 150K
R94 3.3K
C43 100P
C44 100P
R95 3.3K
R96 150K
D8
D9
BBD (128-stage)
IC14
R98 150K
R97 15K
R99 10K
C45 0.0015
R100 33K
R101 1/4W22
Low-Pass Filter
R102 100K
R103 100K
C47 470P
C48 220P
IC3-1
R104 3.3K
C49 0.0068
C46 25V47
Buffer
Q9
R45 270K
C18 50V2.2
R47 47K
D2
D3
IC5
R48 150K
R49 3.3K
C19 100P
C20 100P
R50 3.3K
R51 150K
R53 150K
R52 15K
R54 10K
C21 680P
BBD (521-stage)
IC11
R55 33K
C22 25V47
R56 1/4W22
Low-Pass Filter (fc=10KHz)
R57 100K
R58 82K
C23 470P
C24 68P
IC1-1
R59 1K
C25 0.022
CO1(2) → MIX(CO1)
STE1(66) → SEL (STE1)
STE Bias
R41 22K
VR2 20KB
R42 22K
Q13
R105 220K
R106 220K
C50 50V0.47
R107 33K
IC9
R108 150K
R109 3.3K
C51 100P
C52 100P
R110 3.3K
R111 150K
D10
D11
BBD (128-stage)
IC15
R113 150K
R112 15K
R114 10K
C53 0.0015
R115 33K
R116 1/4W22
R117 100K
R118 100K
C55 470P
C56 220P
IC4-1
R119 3.3K
C57 0.0068
C54 25V47
Q10
R60 270K
C26 50V2.2
R62 47K
D4
D5
IC6
R63 150K
R64 3.3K
C27 100P
C28 100P
R65 3.3K
R66 150K
R68 150K
R67 15K
R69 10K
C29 680P
IC12
R70 33K
C30 25V47
R71 1/4W 22
R72 100K
R73 82K
C31 470P
C32 68P
IC2-1
R74 1K
C33 0.022
CO2(3) → MIX(CO2)
STE2(67) → SEL(STE2)
Q14
R120 220K
R121 220K
C58 50V0.47
R122 33K
IC10
R123 150K
R124 3.3K
C59 100P
C60 100P
R125 3.3K
R126 150K
D12
D13
BBD (128-stage)
IC16
R128 150K
R127 15K
R129 10K
C61 0.0015
R130 33K
C62 25V47
R131 1/4W22
R132 100K
R133 100K
C63 470P
C64 220P
IC4-2
R134 3.3K
C65 0.0068
Q11
R75 270K
C34 50V2.2
R77 47K
D6
D7
IC7
R78 150K
R79 3.3K
C35 100P
C36 100P
R80 3.3K
R81 150K
R83 150K
R82 15K
R84 10K
C37 680P
IC13
R85 33K
C38 25V47
R86 1/4W22
R87 100K
R88 82K
C39 470P
C40 68P
IC2-2
R89 1K
C41 0.022
CO3(4) → MIX(CO3)
STE3(68) → SEL (STE3)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

MIX

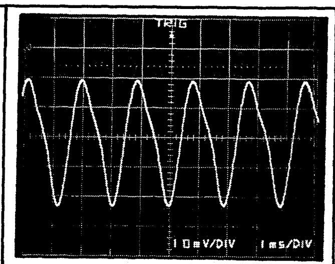
MIXING CIRCUIT BOARD

❶



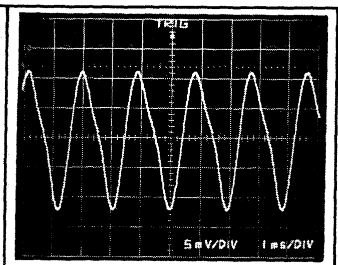
- Upper Tab Voices...............Flute 8′
- Chorus.................................U. Tab Voices
- Upper Vol...Max. • Upper Key...C4

❸



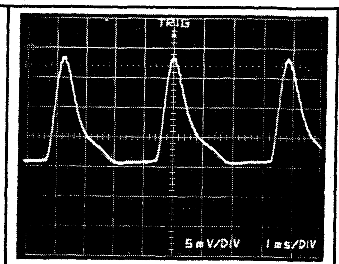
- Upper Tab Voices...............Flute 8′
- Celeste.................................U. Tab Voices
- Upper Volume.....................step 4
- Upper Key............................C4

❷, ❹, ❺



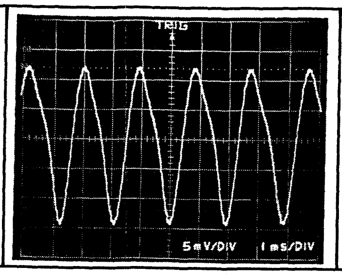
- Upper Tab Voices...............Flute 8′
- Celeste.................................U. Tab Voices
- Upper Volume.....................step 4
- Upper Key............................C4

❻



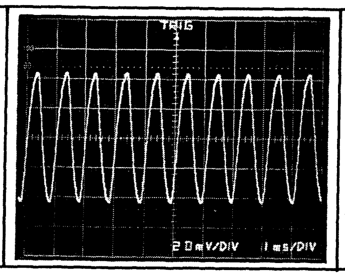
- U. Orchestral Presets ....Trombone
- Harmonic Control...............Normal
- Volume.................................step 4
- Upper Key............................C4

❼



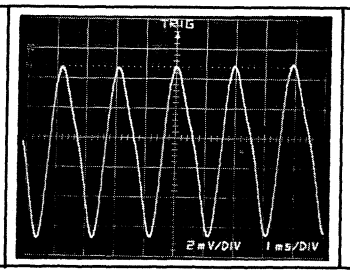
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key............................C4

❽



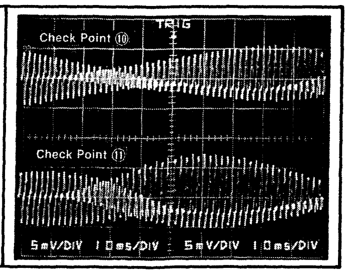
- Record.................................ON
- Rhythm Sequencer.............ON
- Lower Key...........................C3

❾



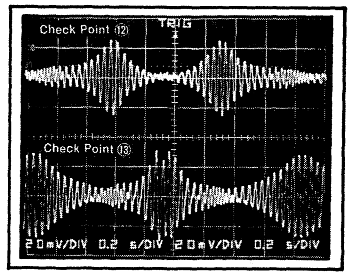
- Upper Tab Voices...............Flute 8′
- Tremolo ....U. Tab (fast)
- Upper Volume.....................step 4
- Upper Key............................C4

❿, ⓫



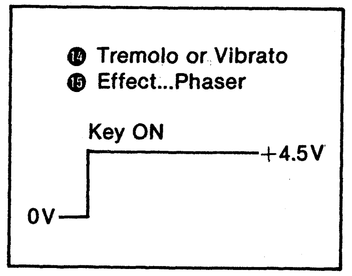
- Upper Tab Voices...............Flute 8′
- Tremolo ....U. Tab (fast)
- Upper Volume.....................step 4
- Upper Key............................C4

⓬, ⓭

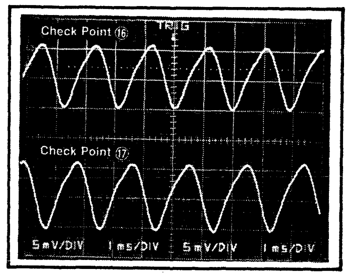


- Upper Tab Voices...............Flute 8′
- Phaser..................................U. Tab Voices
- Upper Volume.....................step 4
- Upper Key............................C4

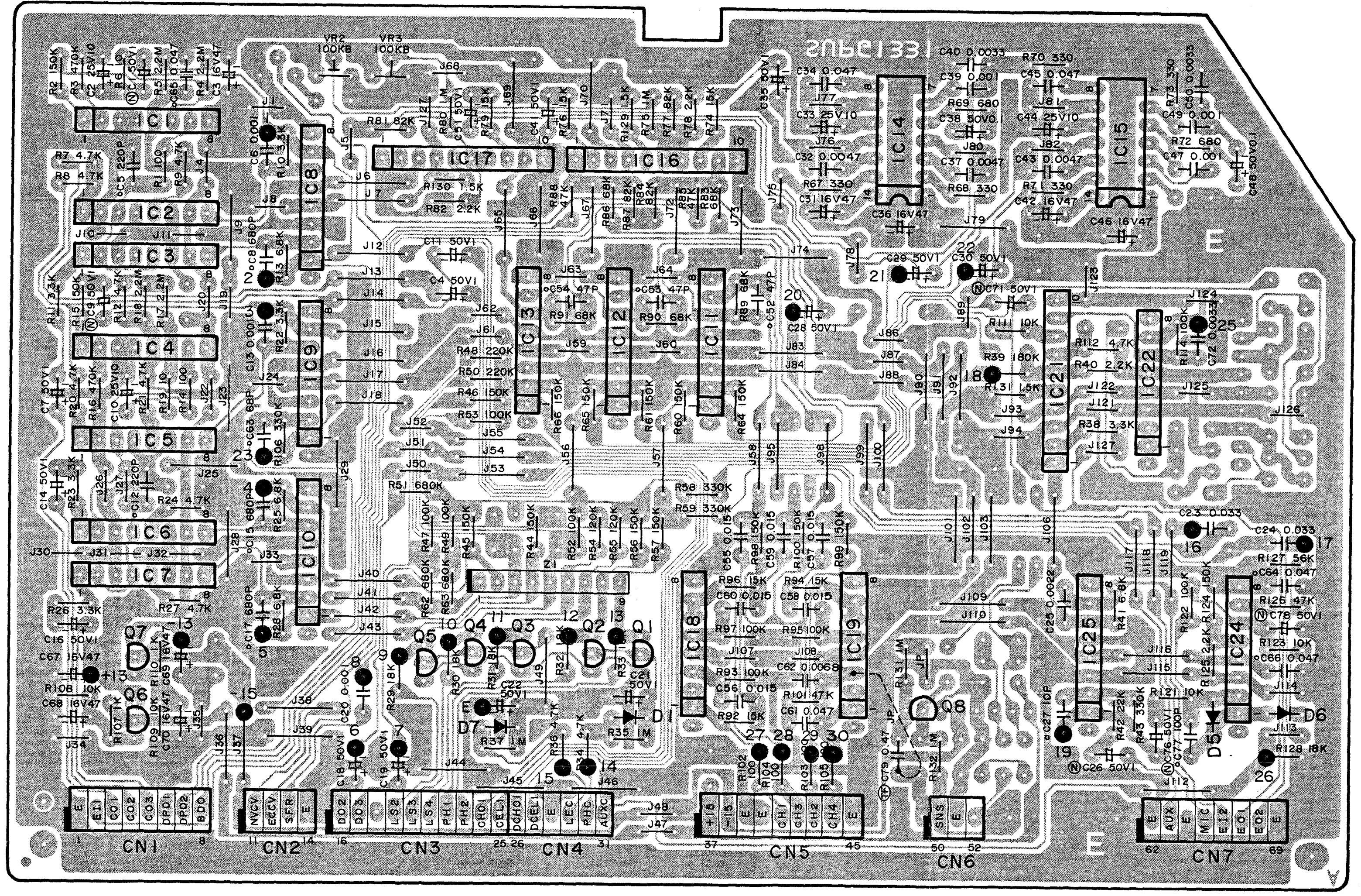
⓮, ⓯



⓰, ⓱



- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Reverb Volume ....step 4
- Upper Key............................C4

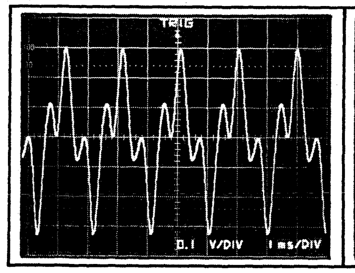


SXPG133121

NOTES:

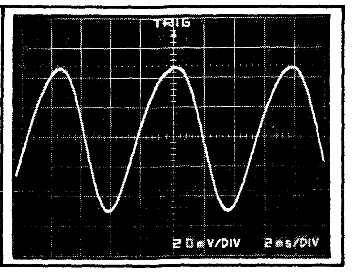
• IC'S	
IC1, 4:	SVIGUPC1253H
IC2, 3, 5~7:	SVIGUPC1252H
IC8~13, 18, 19, 22, 24, 25:	SVIGM5218L
IC14, 15:	SVIGLM1894N
IC16, 17, 21:	SVIGM5241L
• TRANSISTORS	
Q1~5, 8:	2SJ40CD
Q6:	2SC2320LFG
Q7:	2SA933STRS
• DIODES	
D1, 5~7	MA165TA5

㉙



- U. Solo Presets..................Flute
- Solo Volume,
  Main Vol, EXP....................Max.
- Harmonic Control...............Normal
- Reverb Vol...step 1 • UKB...C4

㉚

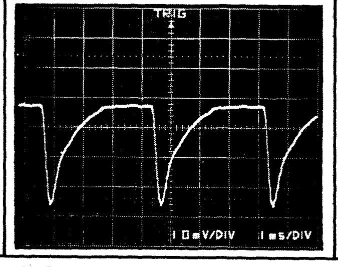


- Bass.....................................Bass 8′
- Bass Vol, Main Vol, EXP...Max.
- Harmonic Control...............Normal
- Pedal Key C2

⓲ Reverb Vol. Control

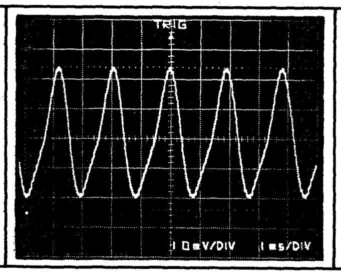
- Reverb Volume
  - Step 1..................−12V
  - Step 2..................−5.4V
  - Step 3..................−3.2V
  - Step 4..................0V

⑳



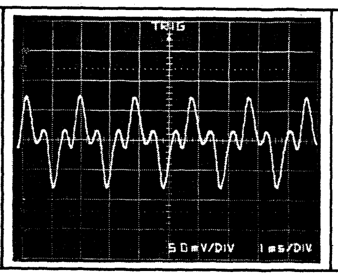
- U. Orchestral Presets ....Trombone
- Harmonic Control...............Normal
- Volume.................................step 4
- Reverb Vol...step 1 • UKB... C4

㉑



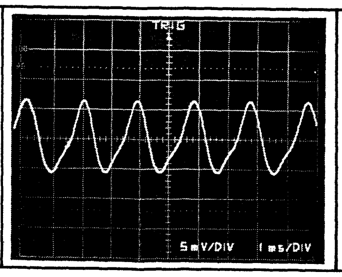
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key............................C4
- Reverb Volume ....step 1

㉒



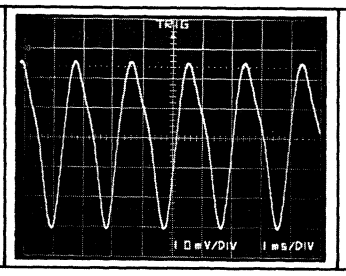
- U. Solo Presets..................Flute
- Solo Volume........................step 4
- Harmonic Control...............Normal
- Reverb Vol...step 1 • UKB...C4

㉓



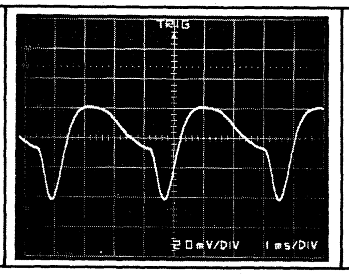
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key............................C4

㉕



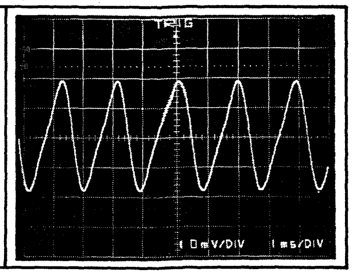
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key............................C4

㉗



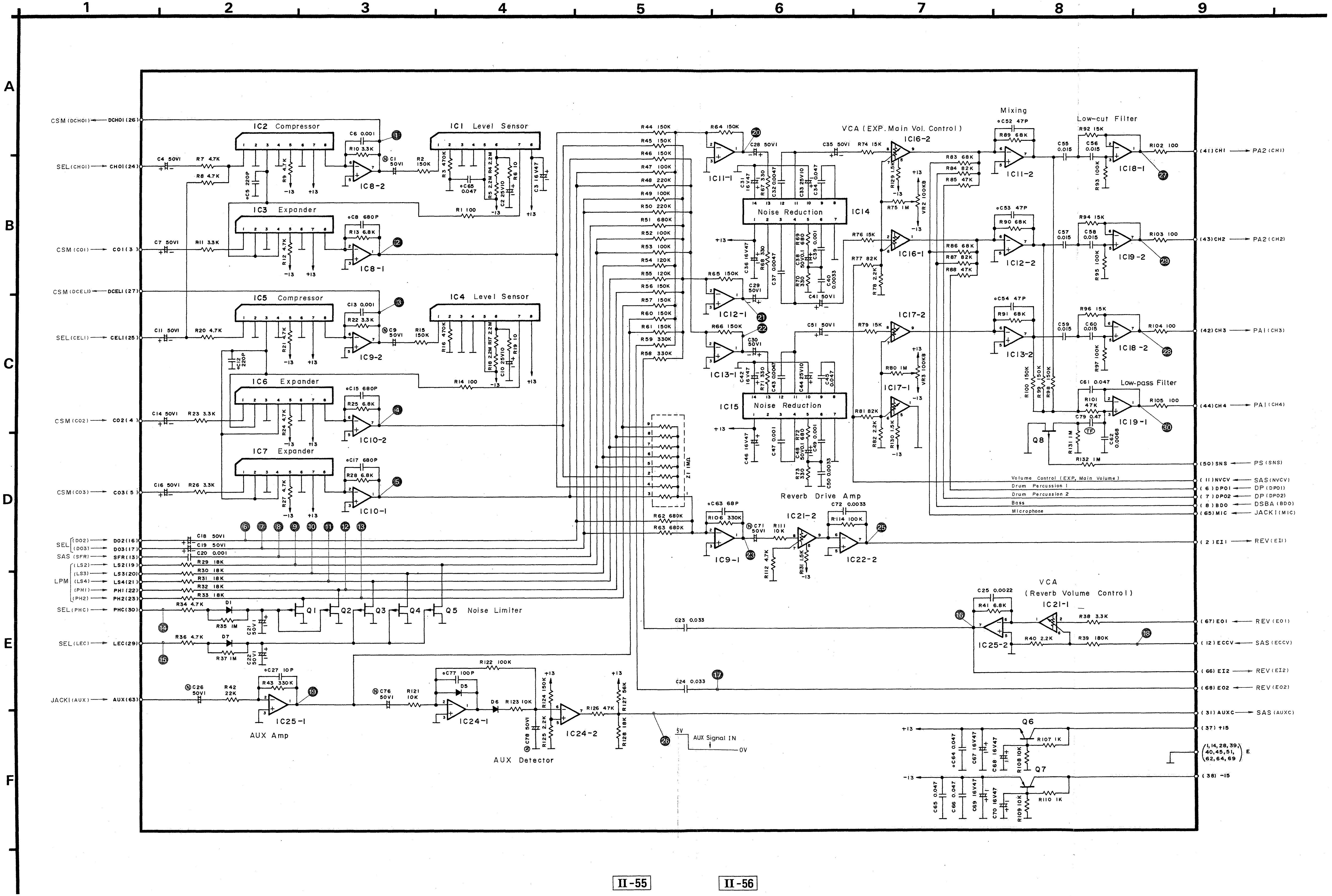
- U. Orchestral Presets ....Trombone
- Harmonic Control...............Normal
- Main Vol., Exp,
  Orchestral Vol....................Max.
- Reverb Vol...step 1 • UKB...C4

㉘



- Upper Tab Voices...............Flute 8′
- Upper Vol, Main Vol, EXP .....Max.
- Reverb Vol..........................step 1
- Upper Key............................C4

MIX MIXING CIRCUIT DIAGRAM

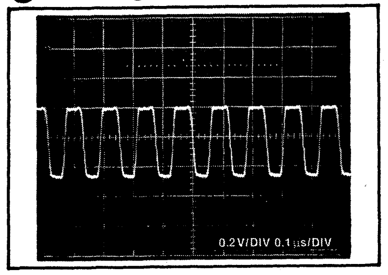

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
IC2 Compressor
IC1 Level Sensor
IC3 Expander
IC5 Compressor
IC4 Level Sensor
IC6 Expander
IC7 Expander
IC8-2
IC8-1
IC9-2
IC10-2
IC10-1
IC11-1
IC12-1
IC13-1
IC14 Noise Reduction
IC15 Noise Reduction
VCA (EXP. Main Vol. Control)
IC16-2
IC16-1
IC17-2
IC17-1
Mixing
IC11-2
IC12-2
IC13-2
Low-cut Filter
IC18-1
IC19-2
IC18-2
Low-pass Filter
IC19-1
Q8
Reverb Drive Amp
IC9-1
IC21-2
IC22-2
Z1 1MΩ
Q1
Q2
Q3
Q4
Q5
Noise Limiter
VCA
(Reverb Volume Control)
IC21-1
IC25-2
IC25-1
AUX Amp
IC24-1
AUX Detector
IC24-2
AUX Signal IN
5V
0V
Q6
Q7
CSM (DCH01) ← DCH01 (26)
SEL (CH01) → CH01 (24)
CSM (C01) ← C01 (3)
CSM (DCEL1) ← DCEL1 (27)
SEL (CEL1) → CEL1 (25)
CSM (C02) ← C02 (4)
CSM (C03) ← C03 (5)
SEL (D02) → D02 (16)
(D03) → D03 (17)
SAS (SFR) → SFR (13)
LPM (LS2) → LS2 (19)
(LS3) → LS3 (20)
(LS4) → LS4 (21)
(PH1) → PH1 (22)
(PH2) → PH2 (23)
SEL (PHC) → PHC (30)
SEL (LEC) → LEC (29)
JACK1 (AUX) → AUX (63)
(41) CH1 → PA2 (CH1)
(43) CH2 → PA2 (CH2)
(42) CH3 → PA1 (CH3)
(44) CH4 → PA1 (CH4)
(50) SNS → PS (SNS)
Volume Control (EXP. Main Volume)
(11) NVCV ← SAS (NVCV)
Drum Percussion 1
(6) DP01 ← DP (DP01)
Drum Percussion 2
(7) DP02 ← DP (DP02)
Bass
(8) BD0 ← DSBA (BD0)
Microphone
(65) MIC ← JACK1 (MIC)
(2) EI1 → REV (EI1)
(67) E01 ← REV (E01)
(12) ECCV ← SAS (ECCV)
(66) EI2 → REV (EI2)
(68) E02 ← REV (E02)
(31) AUXC → SAS (AUXC)
(37) +15
(1, 14, 28, 39, 40, 45, 51, 62, 64, 69) E
(38) -15

REV REVERB CIRCUIT BOARD

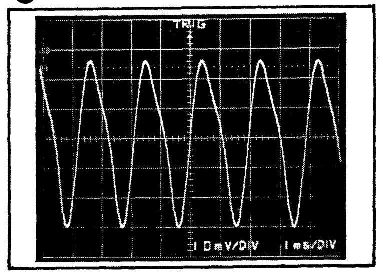
1 2 3 4 5 6 7 8 9

A B C D E F

❶ 8MHz Clock

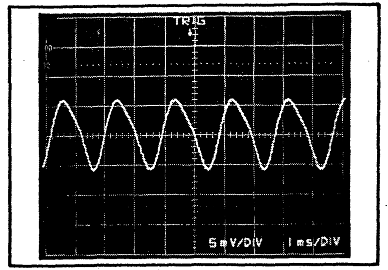


❷



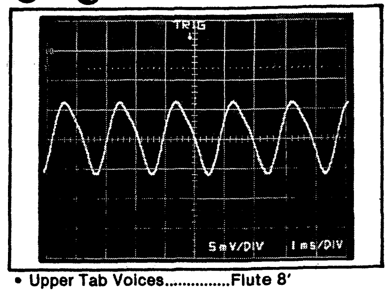
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key...........................C4

❸

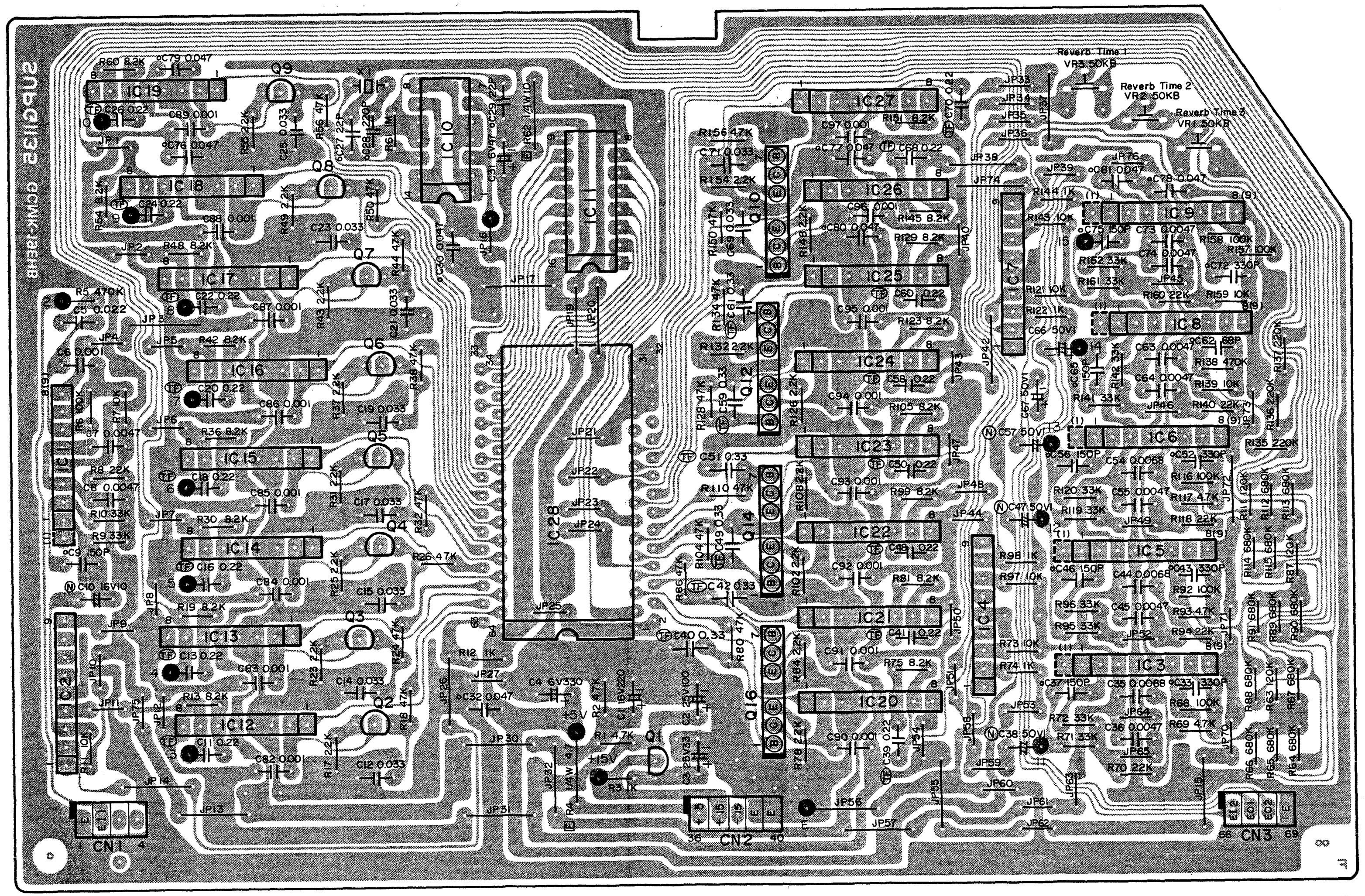


- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key...........................C4

❹~❿



- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key...........................C4

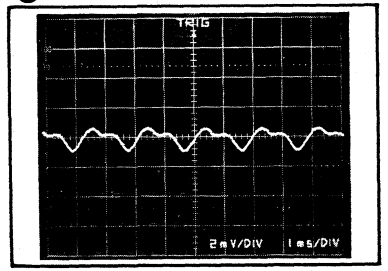

IC19
IC18
IC17
IC16
IC15
IC14
IC13
IC12
IC2
IC1
IC10
IC11
IC28
IC27
IC26
IC25
IC24
IC23
IC22
IC21
IC20
IC7
IC4
IC9
IC8
IC6
IC5
IC3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q12
Q14
Q16
Reverb Time 1 VR3 50KB
Reverb Time 2 VR2 50KB
Reverb Time 3 VR1 50KB
CN1
CN2
CN3
+5V
+15V

SXPG113521

NOTES:

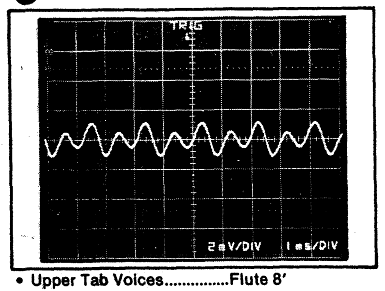
- IC'S
  - IC1, 3, 5, 6, 8, 9: SVIGM5218L
  - IC2, 4, 7: AN6913
  - IC10: SVIGTC40H000
  - IC11: SVIGM5K4164
  - IC12~27: SVIGM5225L
  - IC28: SVIG65010022
- TRANSISTORS
  - Q1~9: 2SC2320LFG
  - Q10, 12, 14, 16: SVIGUPA76HA

⓫



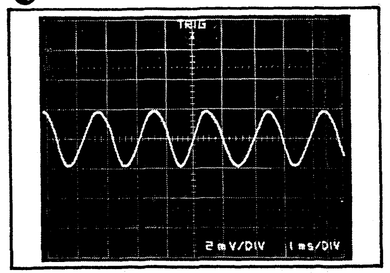
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key...........................C4

⓬



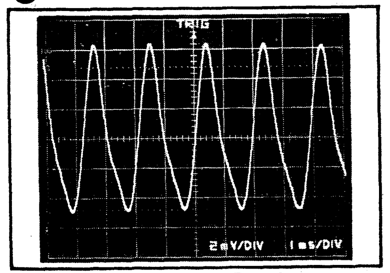
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key...........................C4

⓭



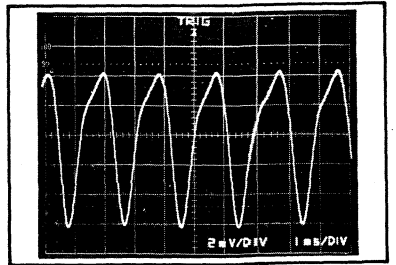
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key...........................C4

⓮



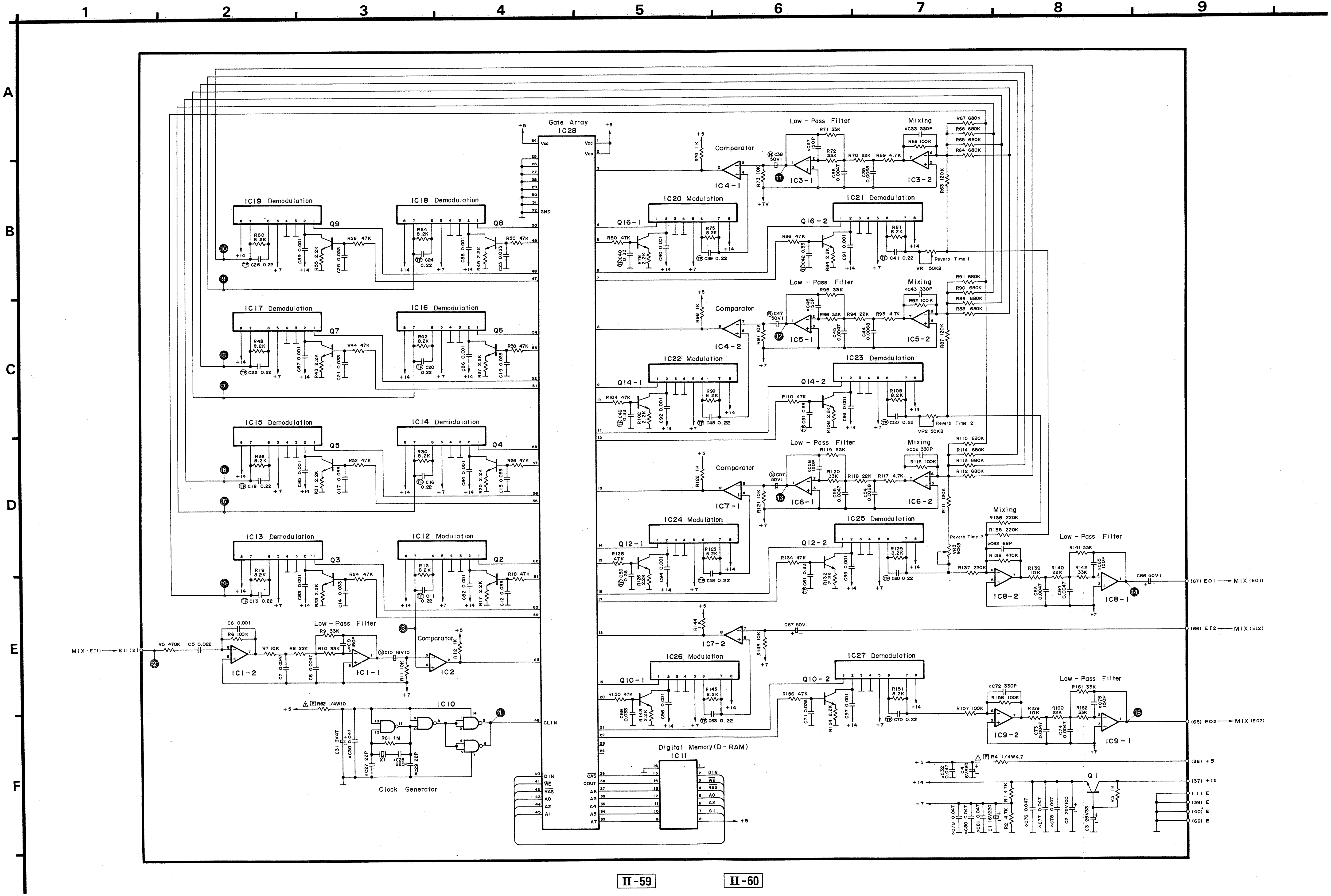
- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Upper Key...........................C4

⓯

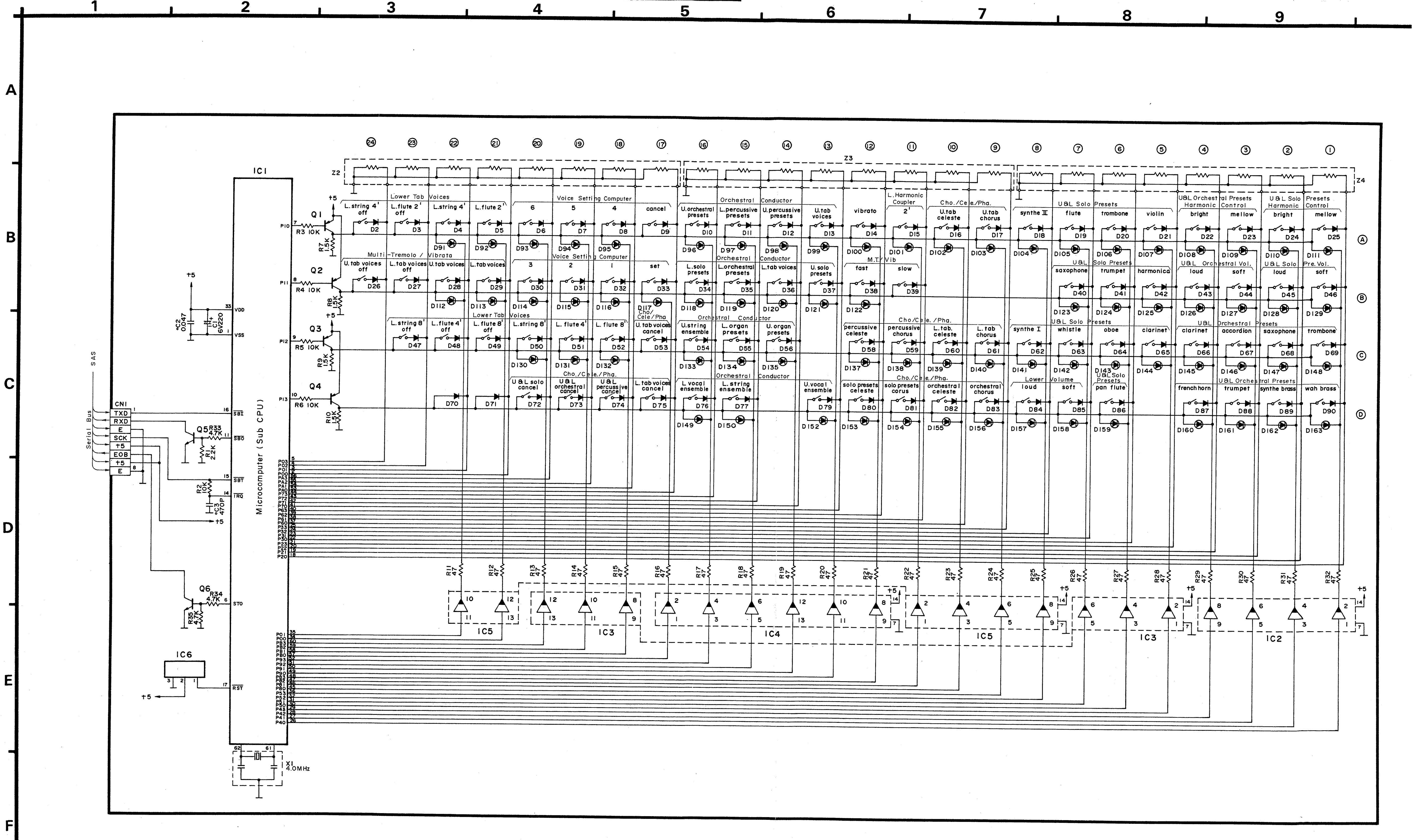


- Upper Tab Voices...............Flute 8′
- Upper Volume.....................step 4
- Reverb Volume...................step 4
- Upper Key...........................C4

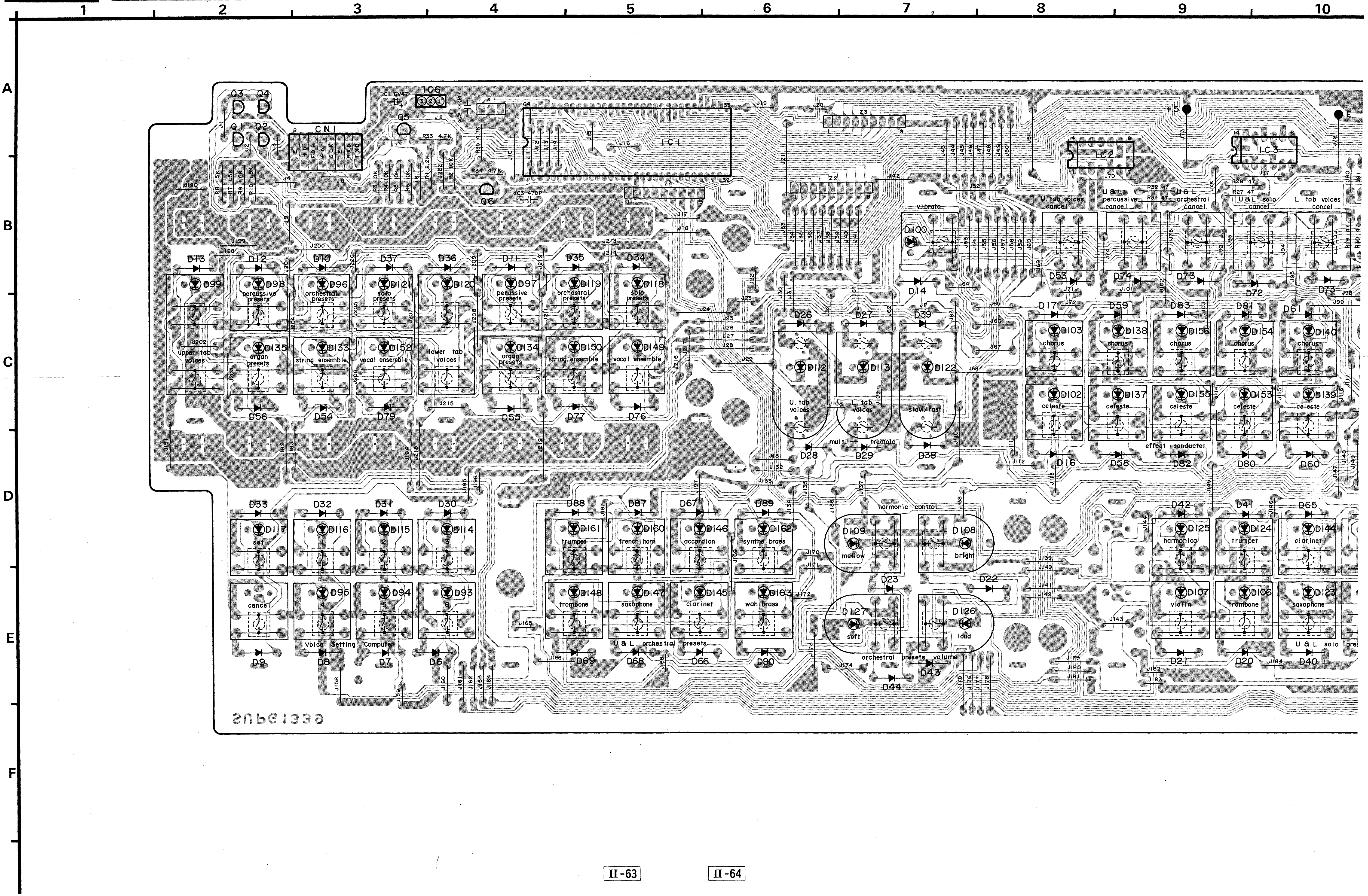
REVERB CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Gate Array
IC28
Vcc
GND
CLIN
DIN
WE
RAS
A0
A2
A1
CAS
DOUT
A3
A4
A5
A6
A7
Digital Memory (D-RAM)
IC11
IC19 Demodulation
IC18 Demodulation
IC17 Demodulation
IC16 Demodulation
IC15 Demodulation
IC14 Demodulation
IC13 Demodulation
IC12 Modulation
IC20 Modulation
IC21 Demodulation
IC22 Modulation
IC23 Demodulation
IC24 Modulation
IC25 Demodulation
IC26 Modulation
IC27 Demodulation
Q9
Q8
Q7
Q6
Q5
Q4
Q3
Q2
Q16-1
Q16-2
Q14-1
Q14-2
Q12-1
Q12-2
Q10-1
Q10-2
Q1
Comparator
IC4-1
IC4-2
IC7-1
IC7-2
IC2
Low - Pass Filter
IC3-1
IC3-2
IC5-1
IC5-2
IC6-1
IC6-2
Mixing
IC8-2
IC8-1
IC9-2
IC9-1
IC1-2
IC1-1
IC10
Clock Generator
X1
R61 1M
Reverb Time 1
VR1 50KB
Reverb Time 2
VR2 50KB
Reverb Time 3
VR3 50KB
MIX (EI1) → EI1 (2)
(67) EO1 → MIX (EO1)
(66) EI2 → MIX (EI2)
(68) EO2 → MIX (EO2)
(36) +5
(37) +15
(1) E
(39) E
(40) E
(69) E
R5 470K
C5 0.022
R6 100K
C6 0.001
R7 10K
R8 22K
R9 33K
R10 33K
C9 150P
C10 16V10
R11 10K
R12 1K
R62 1/4W10
R4 1/4W4.7
C67 50V1
C66 50V1
+5
+7
+14

UPPER CONTROL PANEL RIGHT CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
IC1
Microcomputer (Sub CPU)
CN1
TXD
RXD
E
SCK
+5
EOB
Serial Bus
SAS
Q1
Q2
Q3
Q4
Q5
Q6
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.5K
R8 1.5K
R9 1.5K
R10 1.5K
R33 4.7K
R1 2.2K
R2 10K
C3 470P
R34 4.7K
R35 4.7K
C2 0.047
C1 6V220
VDD
VSS
SBI
SBO
SBT
IRQ
STO
RST
P10
P11
P12
P13
IC6
X1 4.0MHz
Z2
Z3
Z4
Lower Tab Voices
L.string 4' off
L.flute 2' off
L.string 4'
L.flute 2'
Voice Setting Computer
6
5
4
cancel
3
2
1
set
Multi-Tremolo / Vibrato
U.tab voices off
L.tab voices off
U.tab voices
L.tab voices
L.string 8' off
L.flute 4' off
L.flute 8' off
L.string 8'
L.flute 4'
L.flute 8'
Cho./Cele/Pha
U.tab voices cancel
U&L solo cancel
U&L orchestral cancel
U&L percussive cancel
L.tab voices cancel
Orchestral Conductor
U.orchestral presets
L.percussive presets
U.percussive presets
U.tab voices
L.solo presets
L.orchestral presets
L.tab voices
U.solo presets
U.string ensemble
L.organ presets
U.organ presets
L.vocal ensemble
L.string ensemble
U.vocal ensemble
L.Harmonic Coupler
2'
vibrato
M.T./Vib
fast
slow
Cho./Cele./Pha.
U.tab celeste
U.tab chorus
percussive celeste
percussive chorus
L.tab celeste
L.tab chorus
solo presets celeste
solo presets corus
orchestral celeste
orchestral chorus
synthe II
U&L Solo Presets
flute
trombone
violin
saxophone
trumpet
harmonica
synthe I
whistle
oboe
clarinet
Lower Volume
loud
soft
U&L Solo Presets
pan flute
U&L Orchestral Presets
Harmonic Control
bright
mellow
U&L Orchestral Vol.
loud
soft
U&L Solo Harmonic
Presets Control
U&L Solo Pre.Vol.
accordion
french horn
synthe brass
wah brass
A
B
C
D
IC2
IC3
IC4
IC5
R11 47 – R32 47

CPR UPPER CONTROL PANEL RIGHT CIRCUIT BOARD


1
2
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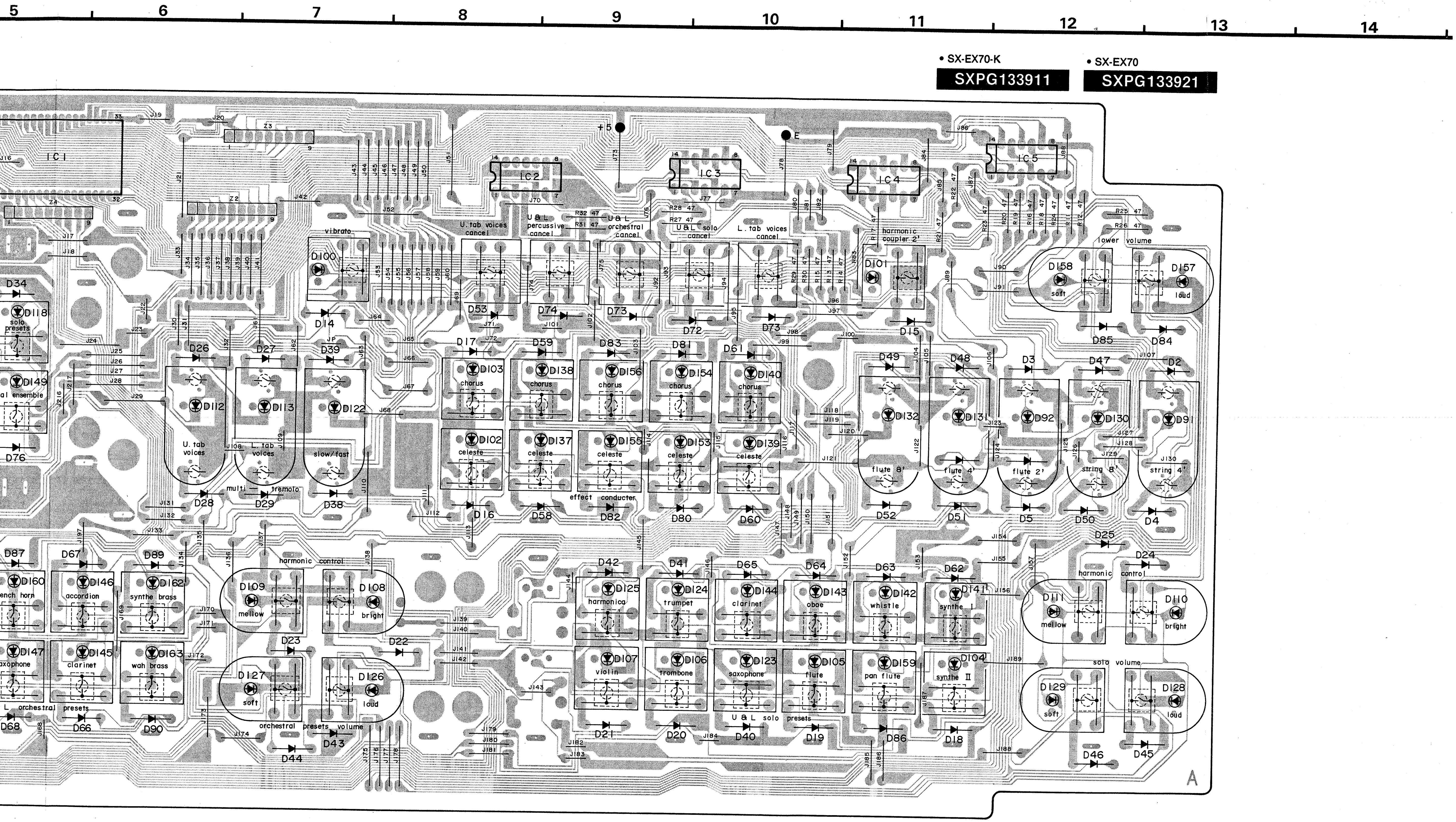
6
7
8
9
10
A
B
C
D
E
F
Q3
Q4
Q1
Q2
Q5
Q6
CN1
IC6
IC1
IC2
IC3
Z2
Z3
Z4
X1
C1 6V47
C2 0.047
C3 470P
R33 4.7K
R34 4.7K
R35 4.7K
R8 1.5K
R7 1.5K
R9 1.5K
R10 1.5K
R3 10K
R4 10K
R5 10K
R6 10K
R1 2.2K
R2 10K
R32 47
R31 47
R28 47
R27 47
+5
E
EOB
SCK
RXD
TXD
D13
D99
upper tab voices
D12
D98
percussive presets
D10
D96
orchestral presets
D37
D121
solo presets
D36
D120
lower tab voices
D11
D97
perussive presets
D35
D119
orchestral presets
D34
D118
solo presets
D135
organ presets
D133
string ensemble
D152
vocal ensemble
D134
organ presets
D150
string ensemble
D149
vocal ensemble
D56
D54
D79
D55
D77
D76
vibrato
D100
D14
D26
D27
D39
D112
D113
D122
U. tab voices
L. tab voices
slow/fast
multi
tremolo
D28
D29
D38
U. tab voices cancel
U&L percussive cancel
U&L orchestral cancel
U&L solo cancel
L. tab voices cancel
D53
D74
D73
D72
D73
D17
D59
D83
D81
D61
D103
D138
D156
D154
D140
chorus
D102
D137
D155
D153
D139
celeste
effect
conducter
D16
D58
D82
D80
D60
D33
D32
D31
D30
D117
set
D116
1
D115
2
D114
3
cancel
D95
4
D94
5
D93
6
D9
D8
D7
D6
Voice Setting Computer
D88
D87
D67
D89
D161
trumpet
D160
french horn
D146
accordion
D162
synthe brass
D148
trombone
D147
saxophone
D145
clarinet
D163
wah brass
D69
D68
D66
D90
U&L orchestral presets
harmonic control
D109
mellow
D108
bright
D23
D22
D127
soft
D126
loud
orchestral presets volume
D43
D44
D42
D41
D65
D125
harmonica
D124
trumpet
D144
clarinet
D107
violin
D106
trombone
D123
saxophone
D21
D20
D40
U&L solo pres
2UPG1339

ARD


5
6
7
8
9
10
11
12
13
14
IC1
IC2
IC3
IC4
IC5
Z2
Z3
Z4
+5
E
vibrato
U. tab voices cancel
U&L percussive cancel
U&L orchestral cancel
U&L solo cancel
L. tab voices cancel
harmonic coupler 2'
lower volume
soft
loud
solo presets
al ensemble
U. tab voices
L. tab voices
slow/fast
multi
tremolo
chorus
celeste
effect
conducter
flute 8'
flute 4'
flute 2'
string 8'
string 4'
harmonic control
mellow
bright
ench horn
accordion
synthe brass
axophone
clarinet
wah brass
harmonica
trumpet
oboe
whistle
synthe I
violin
trombone
saxophone
flute
pan flute
synthe II
L orchestral presets
orchestral presets volume
U&L solo presets
solo volume
A
D100
D101
D158
D157
D34
D118
D149
D76
D26
D27
D39
D112
D113
D122
D14
D53
D74
D73
D72
D15
D85
D84
D17
D59
D83
D81
D61
D103
D138
D156
D154
D140
D102
D137
D155
D153
D139
D49
D48
D3
D47
D2
D132
D131
D92
D130
D91
D28
D29
D38
D16
D58
D82
D80
D60
D52
D51
D5
D50
D4
D25
D24
D87
D67
D89
D160
D146
D162
D109
D108
D42
D41
D65
D64
D63
D62
D125
D124
D144
D143
D142
D141
D111
D110
D147
D145
D163
D23
D22
D127
D126
D107
D106
D123
D105
D159
D104
D129
D128
D68
D66
D90
D43
D44
D21
D20
D40
D19
D86
D18
D46
D45
R32 47
R31 47
R28 47
R27 47
R25 47
R26 47

• SX-EX70-K

SXPG133911

• SX-EX70

SXPG133921

NOTES:

- IC'S

IC1:	MN15524PGP
IC2~5:	SVIGM53217
IC6:	MN1280R

- TRANSISTORS

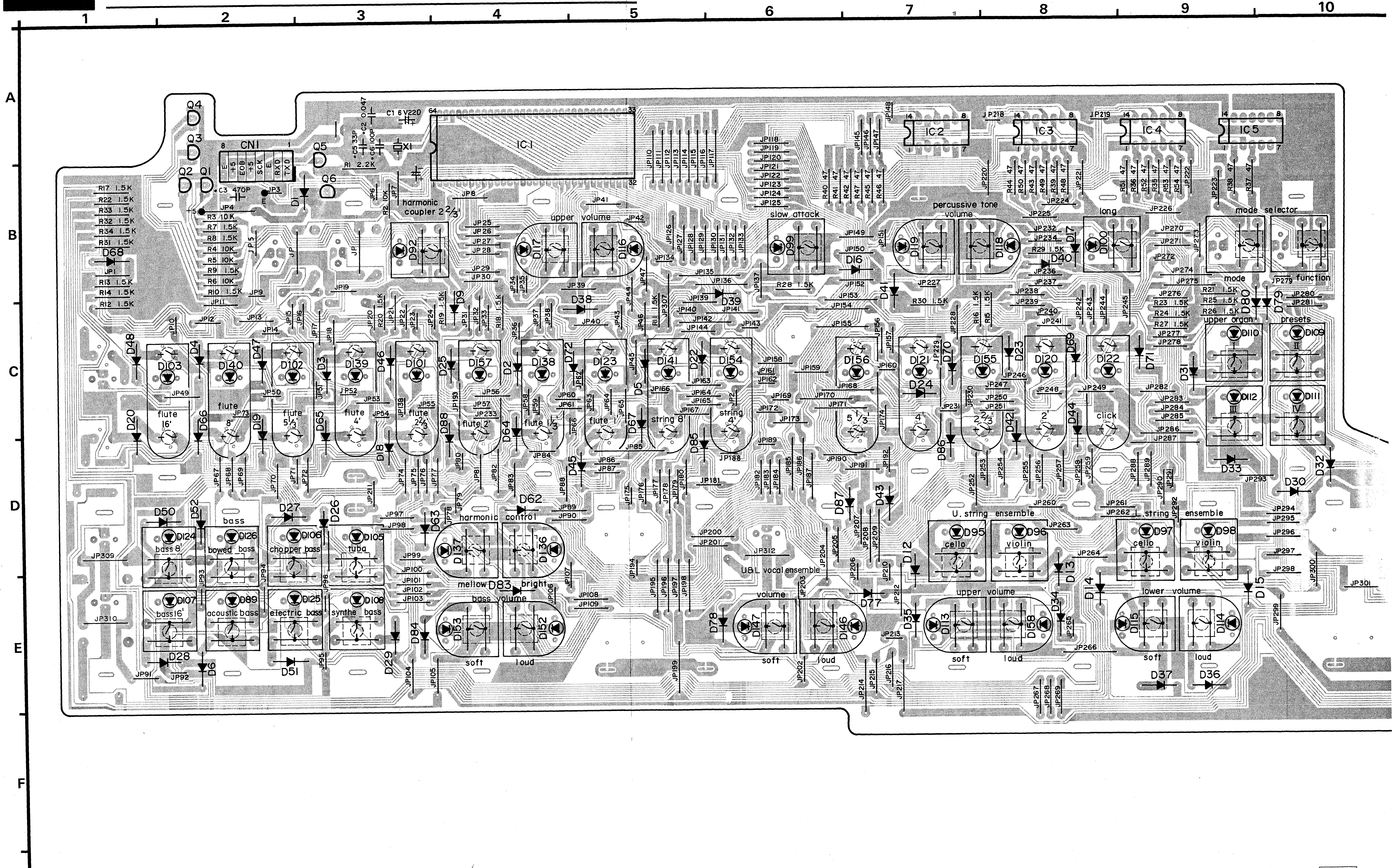
Q1~4:	2SA830B
Q5, 6:	2SC1047C

- DIODES

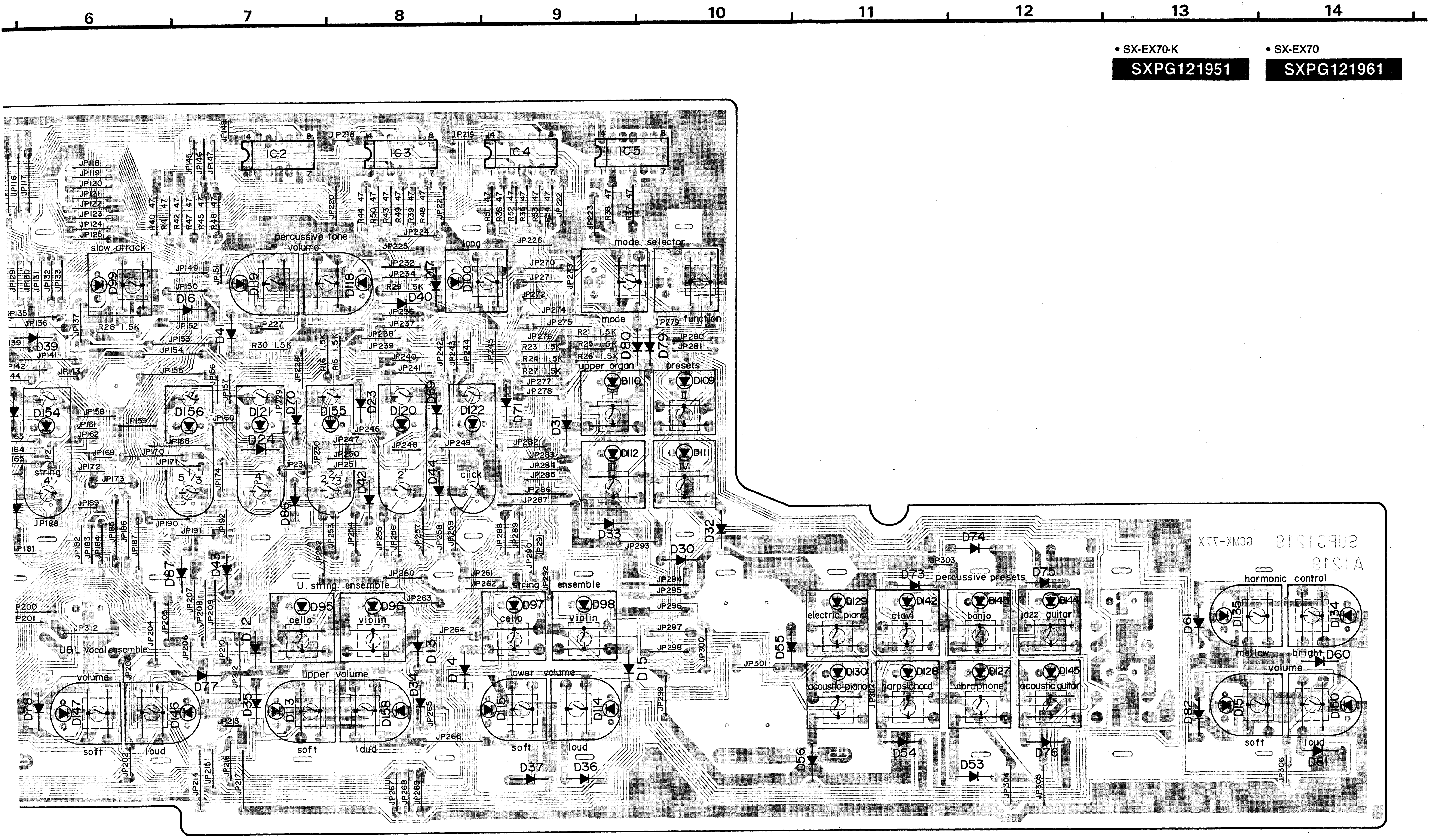
D2~13, 16~56, 58~77, 79~90:	MA162A
D91, 92, 96~100, 102~113, 118~135, 137~150, 152~163:	SEL2210SLFM1 (red)
D93~95, 101, 114~117:	SEL2710KLFM1 (yellow)

CPL

UPPER CONTROL PANEL LEFT CIRCUIT BOARD


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
CN1
IC1
IC2
IC3
IC4
IC5
X1
harmonic coupler 2 2/3'
upper volume
slow attack
percussive tone volume
long
mode selector
mode
function
upper organ
presets
flute 16'
flute 8'
flute 5 1/3'
flute 4'
flute 2 2/3'
flute 2'
flute 1 3/5'
flute 1'
string 8'
string 4'
5 1/3'
4'
2 2/3'
2'
click
bass
bass 8'
bowed bass
chopper bass
tuba
bass 16'
acoustic bass
electric bass
synthe bass
harmonic control
mellow
bright
bass volume
soft
loud
U&L vocal ensemble
volume
U. string ensemble
cello
violin
string ensemble
upper volume
lower volume

- SX-EX70-K
SXPG121951
- SX-EX70
SXPG121961


6
7
8
9
10
11
12
13
14
IC2
IC3
IC4
IC5
slow attack
percussive tone
volume
long
mode selector
mode
function
upper organ
presets
string
4'
5 1/3'
4'
2 2/3'
2'
click
U. string ensemble
cello
violin
string ensemble
cello
violin
U&L vocal ensemble
volume
soft
loud
upper volume
soft
loud
lower volume
soft
loud
percussive presets
electric piano
clavi
banjo
jazz guitar
acoustic piano
harpsichord
vibraphone
acoustic guitar
harmonic control
mellow
bright
volume
soft
loud
SUPG1219 GCMK-77X
A1219

NOTES:

- IC'S

IC1:	MN15621PGA
IC2～5:	SVIGM53217

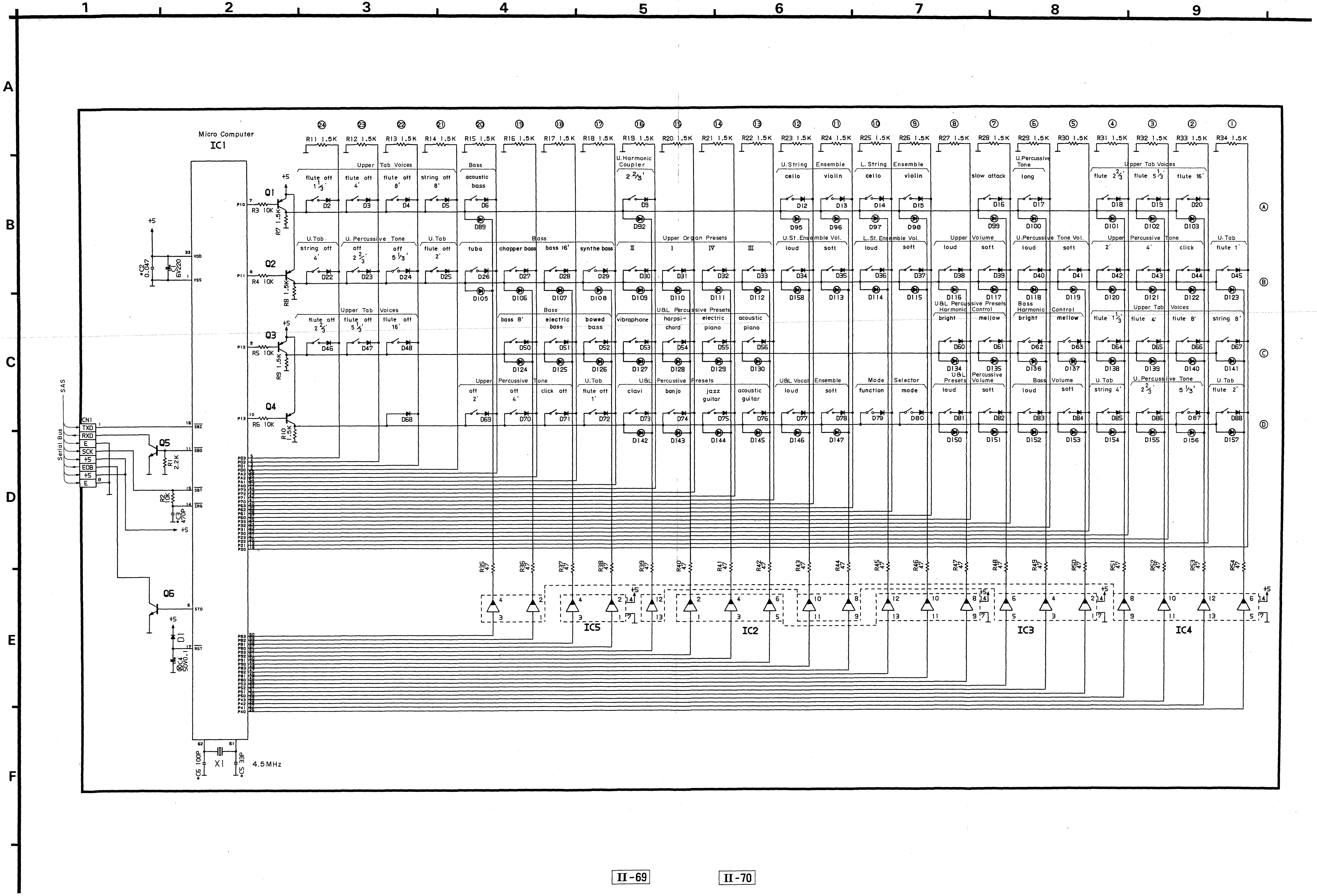
- TRANSISTORS

Q1～4:	2SA830B
Q5, 6:	2SC1047C

- DIODES

D1～6, 9, 12～20, 22～48, 50～56, 60～88:	MA162A
D89, 95～103, 105～108, 113～130, 134～147, 150～158:	SEL2210SLFM1 (red)
D92, 109～112:	SEL2710KLFM1 (yellow)

UPPER CONTROL PANEL LEFT CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
Q1
Q2
Q3
Q4
Q5
Q6
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.5K
R8 1.5K
R9 1.5K
R10 1.5K
R1 2.2K
R2 10K
C1 6V220
C2 0.047
C3 470P
C4 50V0.1
C5 100P
C5 33P
X1
4.5MHz
D1
+5
VDD
VSS
SBI
SBO
SBT
IRQ
STO
RST
CN1
TXD
RXD
E
SCK
+5
EDB
+5
E
Serial Bus
SAS
P10
P11
P12
P13
㉔
㉓
㉒
㉑
⑳
⑲
⑱
⑰
⑯
⑮
⑭
⑬
⑫
⑪
⑩
⑨
⑧
⑦
⑥
⑤
④
③
②
①
R11 1.5K
R12 1.5K
R13 1.5K
R14 1.5K
R15 1.5K
R16 1.5K
R17 1.5K
R18 1.5K
R19 1.5K
R20 1.5K
R21 1.5K
R22 1.5K
R23 1.5K
R24 1.5K
R25 1.5K
R26 1.5K
R27 1.5K
R28 1.5K
R29 1.5K
R30 1.5K
R31 1.5K
R32 1.5K
R33 1.5K
R34 1.5K
Upper Tab Voices
flute off 1 1/3'
flute off 4'
flute off 8'
string off 8'
Bass
acoustic bass
U. Harmonic Coupler
2 2/3'
U. String
cello
Ensemble
violin
L. String
cello
Ensemble
violin
slow attack
U. Percussive Tone
long
Upper Tab Voices
flute 2 2/3'
flute 5 1/3'
flute 16'
Ⓐ
U. Tab
string off 4'
U. Percussive Tone
off 2 2/3'
off 5 1/3'
U. Tab
flute off 2'
tuba
Bass
chopper bass
bass 16'
synthe bass
Upper Organ Presets
II
I
IV
III
U. St. Ensemble Vol.
loud
soft
L. St. Ensemble Vol.
loud
soft
Upper Volume
loud
soft
U. Percussive Tone Vol.
loud
soft
Upper Percussive Tone
2'
4'
click
U. Tab
flute 1'
Ⓑ
Upper Tab Voices
flute off 2 2/3'
flute off 5 1/3'
flute off 16'
Bass
bass 8'
electric bass
bowed bass
vibraphone
U&L Percussive Presets
harpsi-chord
electric piano
acoustic piano
U&L Percussive Presets
Harmonic Control
bright
mellow
Bass Harmonic Control
bright
mellow
Upper Tab Voices
flute 1 1/3'
flute 4'
flute 8'
string 8'
Ⓒ
Upper Percussive Tone
off 2'
off 4'
click off
U. Tab
flute off 1'
U&L Percussive Presets
clavi
banjo
jazz guitar
acoustic guitar
U&L Vocal Ensemble
loud
soft
Mode Selector
function
mode
U&L Presets Volume
loud
soft
Bass Volume
loud
soft
U. Tab
string 4'
U. Percussive Tone
2 2/3'
5 1/3'
U. Tab
flute 2'
Ⓓ
D2
D3
D4
D5
D6
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D12
D13
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D158
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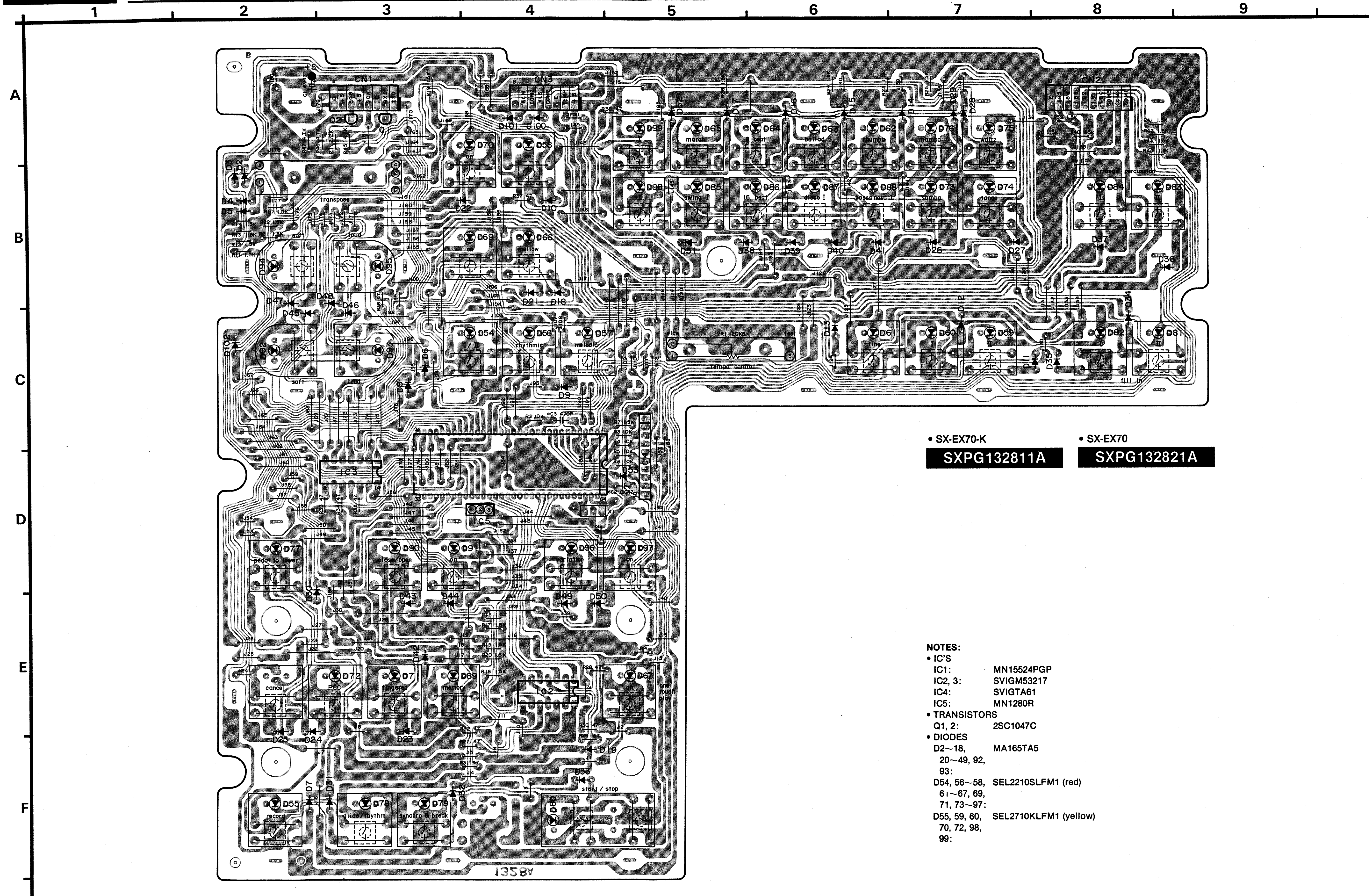
D151
D152
D153
D154
D155
D156
D157
R35 47
R36 47
R37 47
R38 47
R39 47
R40 47
R41 47
R42 47
R43 47
R44 47
R45 47
R46 47
R47 47
R48 47
R49 47
R50 47
R51 47
R52 47
R53 47
R54 47
IC5
IC2
IC3
IC4

CPSL LOWER CONTROL PANEL LEFT CIRCUIT BOARD


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CN1
CN3
CN2
Q1
Q2
IC1
IC2
IC3
IC4
IC5
VR1 20KB
slow
fast
tempo control
transpose
soft
loud
on
march
8 beat
ballad
rhumba
mambo
waltz
swing
16 beat
disco I
bossa nova
samba
tango
arrange
percussion
mellow
I/II
rhythmic
melodic
fine
fill in
pedal to lower
close/open
variation
cancel
PCC
fingered
memory
one touch play
record
glide/rhythm
synchro & break
start / stop
1328A

- SX-EX70-K

SXPG132811A

- SX-EX70

SXPG132821A

NOTES:

- IC'S

IC1:	MN15524PGP
IC2, 3:	SVIGM53217
IC4:	SVIGTA61
IC5:	MN1280R

- TRANSISTORS

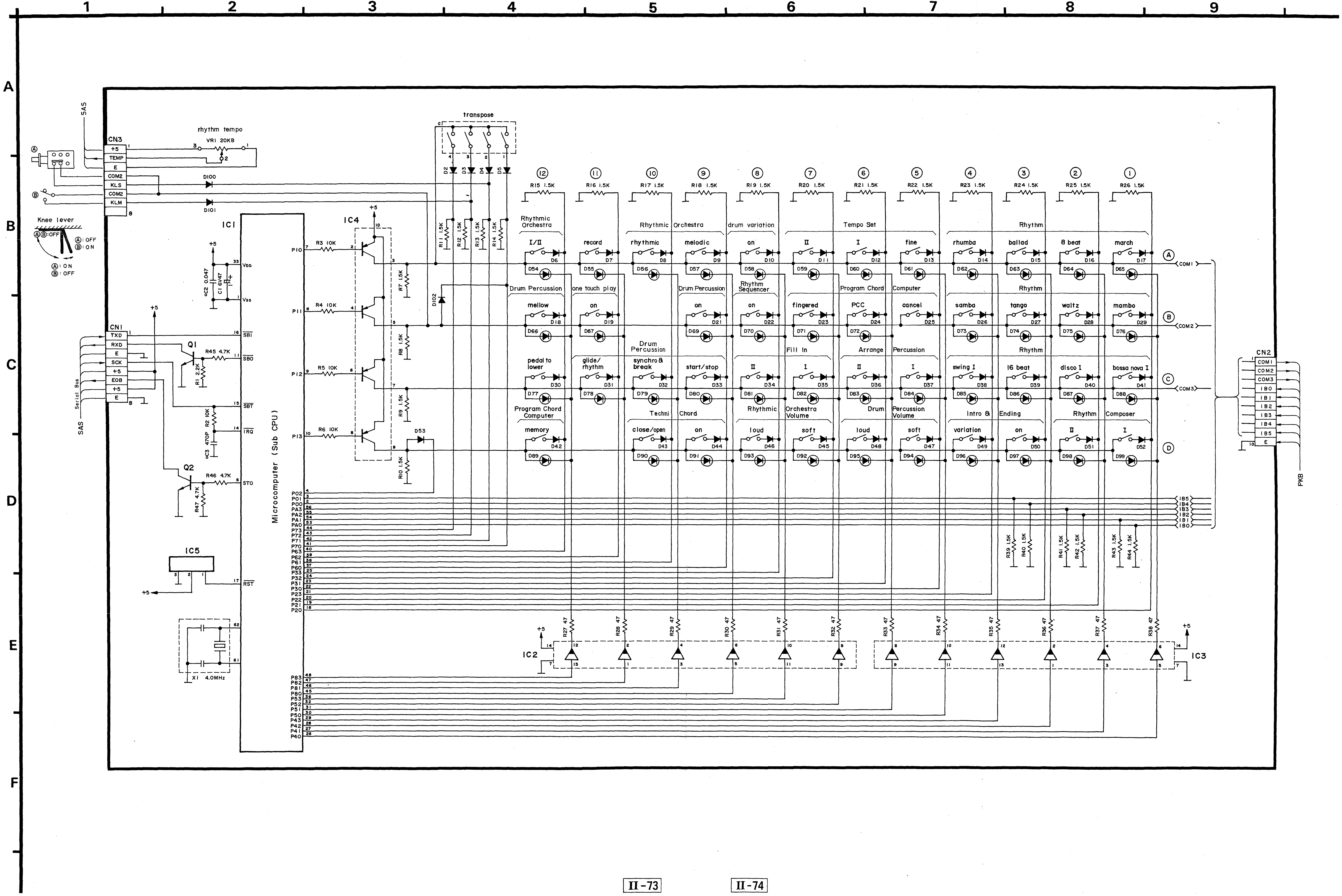
Q1, 2:	2SC1047C

- DIODES

D2～18, 20～49, 92, 93:	MA165TA5
D54, 56～58, 61～67, 69, 71, 73～97:	SEL2210SLFM1 (red)
D55, 59, 60, 70, 72, 98, 99:	SEL2710KLFM1 (yellow)

CPSL

LOWER CONTROL PANEL LEFT CIRCUIT DIAGRAM

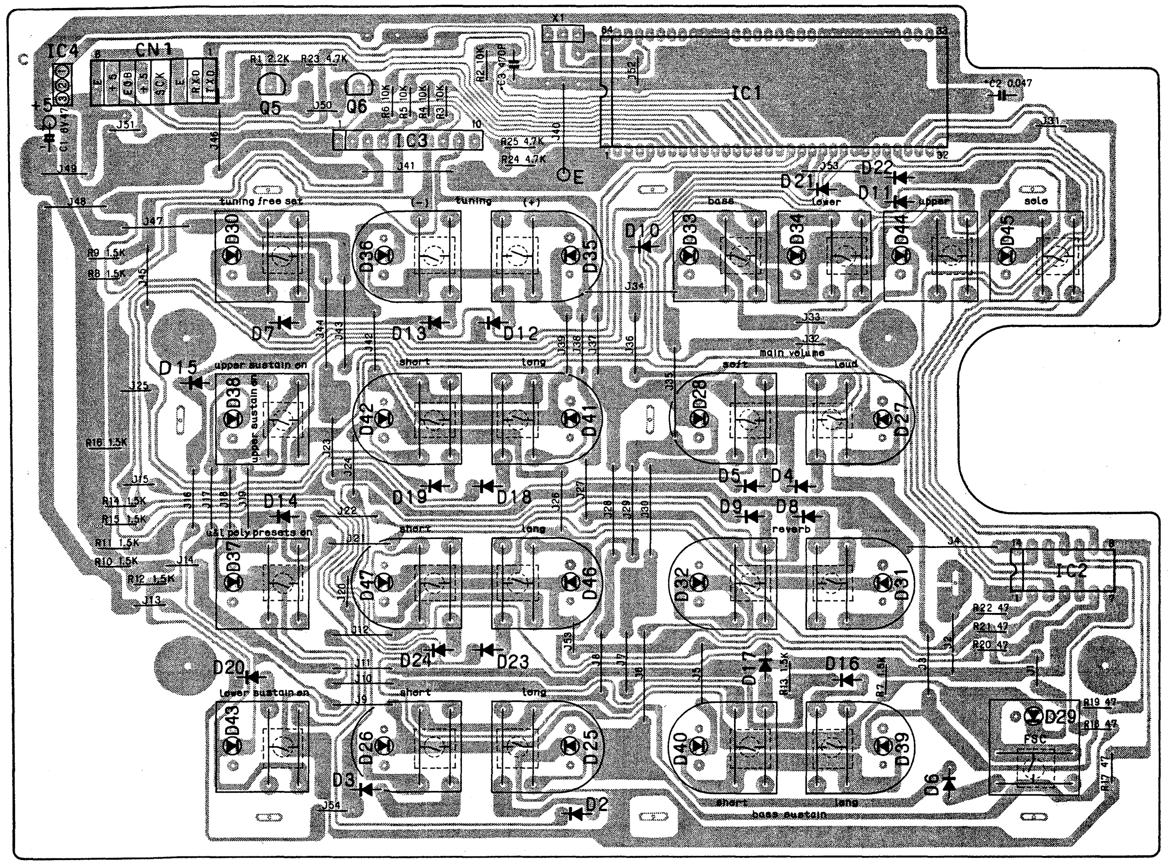

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SAS
CN3
+5
TEMP
E
COM2
KLS
COM2
KLM
rhythm tempo
VR1 20KB
D100
D101
Knee lever
Ⓐ Ⓑ : OFF
Ⓐ : OFF
Ⓑ : ON
Ⓐ : ON
Ⓑ : OFF
IC1
Vᴅᴅ
Vss
C2 0.047
C1 6V47
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Serial Bus
SAS
Q1
R45 4.7K
R1 2.2K
SBI
SBO
SBT
IRQ
R2 10K
C3 470P
Q2
R46 4.7K
R47 4.7K
STO
IC5
RST
+5
X1 4.0MHz
Microcomputer (Sub CPU)
P10
P11
P12
P13
R3 10K
R4 10K
R5 10K
R6 10K
IC4
R7 1.5K
R8 1.5K
R9 1.5K
R10 1.5K
D102
D53
transpose
D2
D3
D4
D5
R11 1.5K
R12 1.5K
R13 1.5K
R14 1.5K
P02
P01
P00
PA3
PA2
PA1
PA0
P73
P72
P71
P70
P63
P62
P61
P60
P33
P32
P31
P30
P23
P22
P21
P20
P83
P82
P81
P80
P53
P52
P51
P50
P43
P42
P41
P40
⑫ R15 1.5K
⑪ R16 1.5K
⑩ R17 1.5K
⑨ R18 1.5K
⑧ R19 1.5K
⑦ R20 1.5K
⑥ R21 1.5K
⑤ R22 1.5K
④ R23 1.5K
③ R24 1.5K
② R25 1.5K
① R26 1.5K
Rhythmic Orchestra
Rhythmic Orchestra
drum variation
Tempo Set
Rhythm
I/II
record
rhythmic
melodic
on
II
I
fine
rhumba
ballad
8 beat
march
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D54
D55
D56
D57
D58
D59
D60
D61
D62
D63
D64
D65
Ⓐ COM1
Drum Percussion
one touch play
Drum Percussion
Rhythm Sequencer
Program Chord
Computer
Rhythm
mellow
on
on
on
fingered
PCC
cancel
samba
tango
waltz
mambo
D18
D19
D21
D22
D23
D24
D25
D26
D27
D28
D29
D66
D67
D69
D70
D71
D72
D73
D74
D75
D76
Ⓑ COM2
Drum Percussion
Fill In
Arrange
Percussion
Rhythm
pedal to lower
glide/rhythm
synchro & break
start/stop
II
I
II
I
swing I
16 beat
disco I
bossa nova I
D30
D31
D32
D33
D34
D35
D36
D37
D38
D39
D40
D41
D77
D78
D79
D80
D81
D82
D83
D84
D85
D86
D87
D88
Ⓒ COM3
Program Chord Computer
Techni Chord
Rhythmic
Orchestra Volume
Drum
Percussion Volume
Intro & Ending
Rhythm
Composer
memory
close/open
on
loud
soft
loud
soft
variation
on
II
I
D42
D43
D44
D46
D45
D48
D47
D49
D50
D51
D52
D89
D90
D91
D93
D92
D95
D94
D96
D97
D98
D99
Ⓓ
IB5
IB4
IB3
IB2
IB1
IB0
R39 1.5K
R40 1.5K
R41 1.5K
R42 1.5K
R43 1.5K
R44 1.5K
CN2
COM1
COM2
COM3
IB0
IB1
IB2
IB3
IB4
IB5
E
PKB
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
IC2
IC3
+5

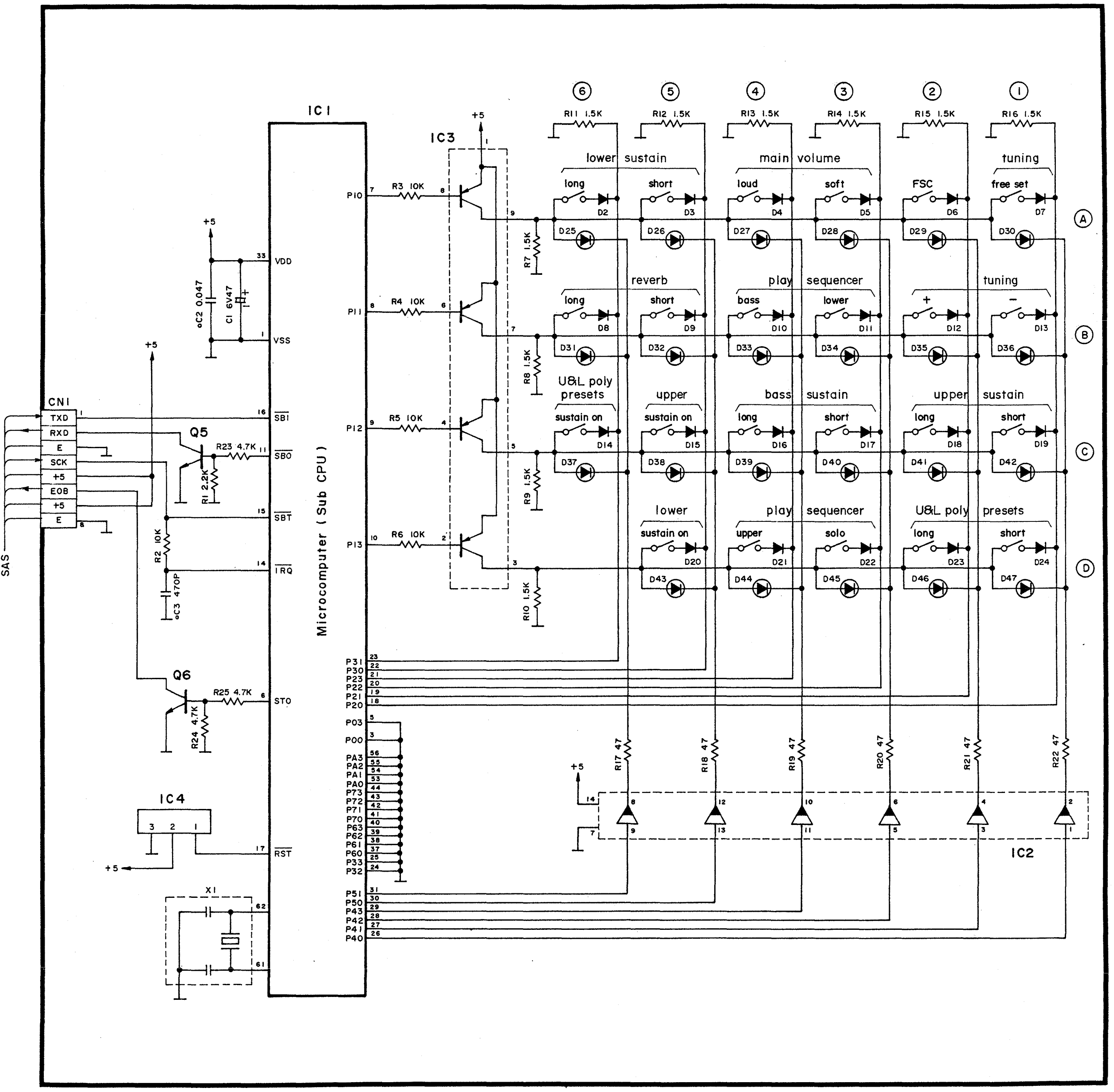
CPSR LOWER CONTROL PANEL RIGHT CIRCUIT BOARD

CPSR LOWER CONTROL PANEL RIGHT CIRCUIT DIAGRAM

1 2 3 4 5 6 7 8 9

- SX-EX70-K **SXPG132811B**
- SX-EX70 **SXPG132821B**


A
B
C
D
IC4
CN1
IC1
IC3
IC2
Q5
Q6
X1
R1 2.2K
R23 4.7K
R25 4.7K
R24 4.7K
C2 0.047
C1 6V47
R9 1.5K
R8 1.5K
R16 1.5K
R14 1.5K
R15 1.5K
R11 1.5K
R10 1.5K
R12 1.5K
R22 47
R21 47
R20 47
R19 47
R18 47
R17 47
tuning free set
tuning
bass
lower
upper
solo
upper sustain on
short
long
main volume
soft
loud
U&L poly presets on
reverb
lower sustain on
bass sustain
FSC
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
D25
D26
D27
D28
D29
D30
D31
D32
D33
D34
D35
D36
D37
D38
D39
D40
D41
D42
D43
D44
D45
D46
D47
E
+5


IC1
Microcomputer (Sub CPU)
IC3
IC2
IC4
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Serial Bus
SAS
Q5
Q6
X1
R1 2.2K
R2 10K
C3 470P
R23 4.7K
R24 4.7K
R25 4.7K
C2 0.047
C1 6V47
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.5K
R8 1.5K
R9 1.5K
R10 1.5K
R11 1.5K
R12 1.5K
R13 1.5K
R14 1.5K
R15 1.5K
R16 1.5K
R17 47
R18 47
R19 47
R20 47
R21 47
R22 47
VDD
VSS
SBI
SBO
SBT
IRQ
STO
RST
P10
P11
P12
P13
P31
P30
P23
P22
P21
P20
P03
P00
PA3
PA2
PA1
PA0
P73
P72
P71
P70
P63
P62
P61
P60
P33
P32
P51
P50
P43
P42
P41
P40
⑥
⑤
④
③
②
①
Ⓐ
Ⓑ
Ⓒ
Ⓓ
lower
sustain
main
volume
tuning
long
short
loud
soft
FSC
free set
reverb
play
sequencer
tuning
bass
lower
+
−
U&L poly presets
upper
bass
sustain
sustain on
long
short
lower
play
sequencer
U&L poly
presets
sustain on
upper
solo
+5

NOTES:

- IC'S

IC1:	MN15524PGP
IC2:	SVIGM53217
IC3:	SVIGTA61
IC4:	MN1280R

- TRANSISTORS

Q5, 6:	2SC1047C

- DIODES

D2～24:	MA165TA5
D25～28, 30～32, 35～43, 46, 47:	SEL2210SLFM1 (red)
D29, 33, 34, 44, 45:	SEL2710KLFM1 (yellow)

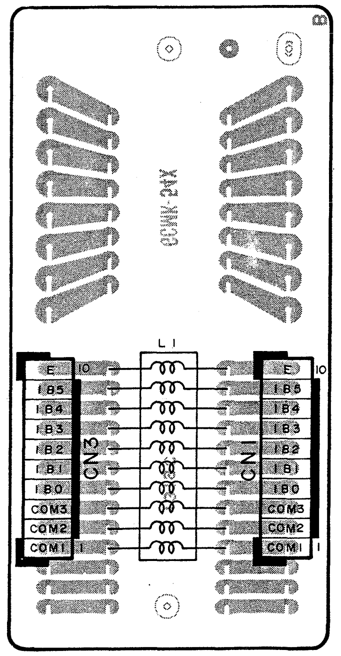
LF1 LF2 FILTER CIRCUIT BOARD

* **NOTE:** PRODUCTS FOR [EZ] ONLY

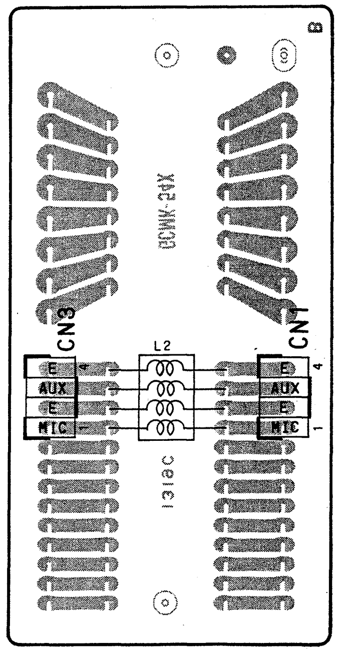
E

F

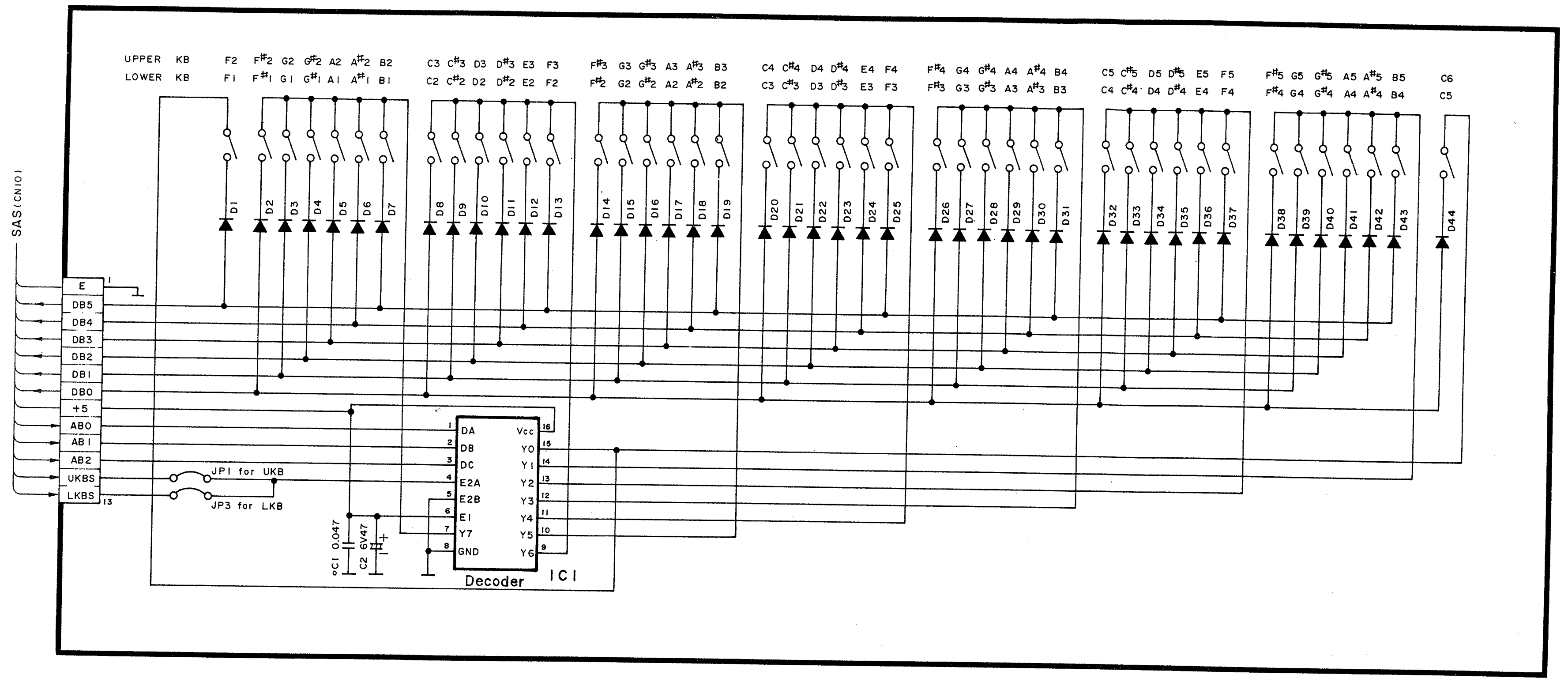
LF1 SXPG131961C


B
GCWK-24X
L1
CN3
CN1
E
IB5
IB4
IB3
IB2
IB1
IB0
COM3
COM2
COM1
10
1

LF2 SXPG131991C

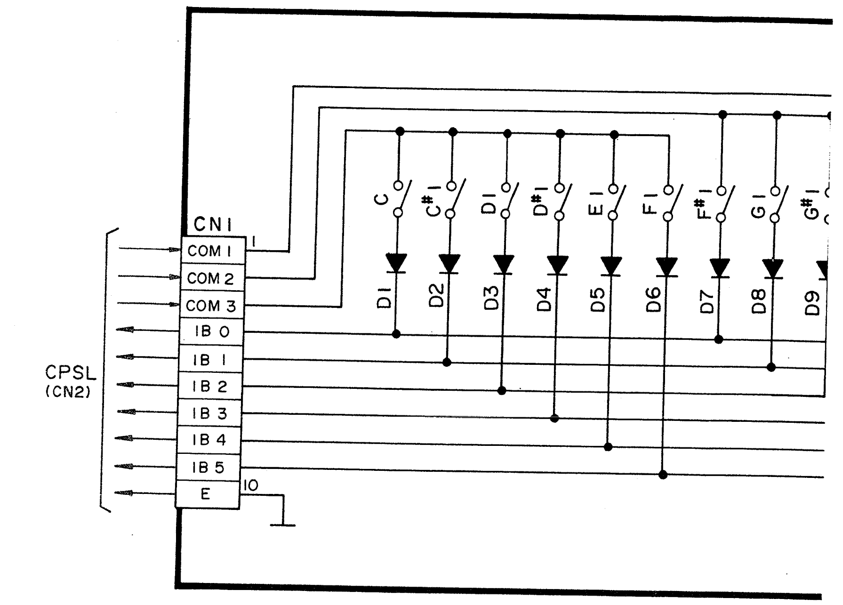

B
GCWK-24X
L2
CN3
CN1
E
AUX
E
MIC
4
1
131ac

MKB MANUAL KEYBOARD CIRCUIT DIAGRAM



UPPER KB
LOWER KB
SAS(CN10)
E
DB5
DB4
DB3
DB2
DB1
DB0
+5
AB0
AB1
AB2
UKBS
LKBS
JP1 for UKB
JP3 for LKB
C1 0.047
C2 6V47
DA
DB
DC
E2A
E2B
E1
Y7
GND
Vcc
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Decoder
IC1
D1～D44
C6
C5

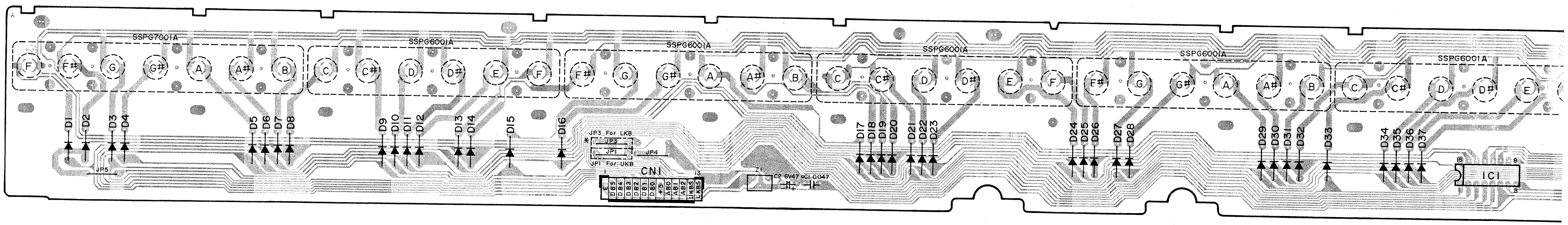
PKB PEDAL KEYBOARD CIRCUIT



CN1
COM 1
COM 2
COM 3
IB 0
IB 1
IB 2
IB 3
IB 4
IB 5
E
CPSL
(CN2)
C
C#1
D1
D#1
E1
F1
F#1
G1
G#1
D1
D2
D3
D4
D5
D6
D7
D8
D9

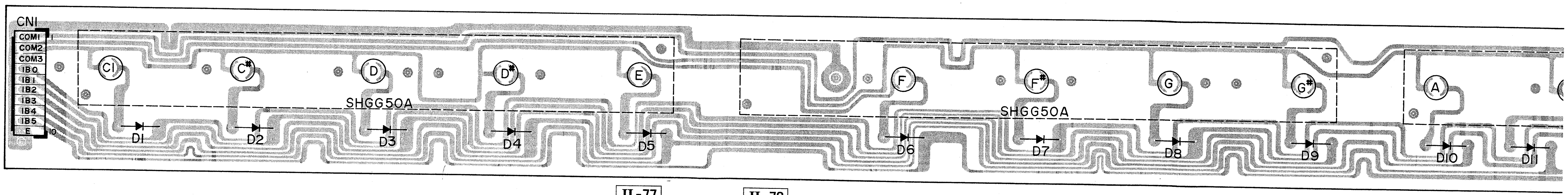
NOTES:
- IC
  IC1: SVIGM74LS138
- DIODES
  D1～44: MA165TA5

MKB MANUAL KEYBOARD CIRCUIT BOARD

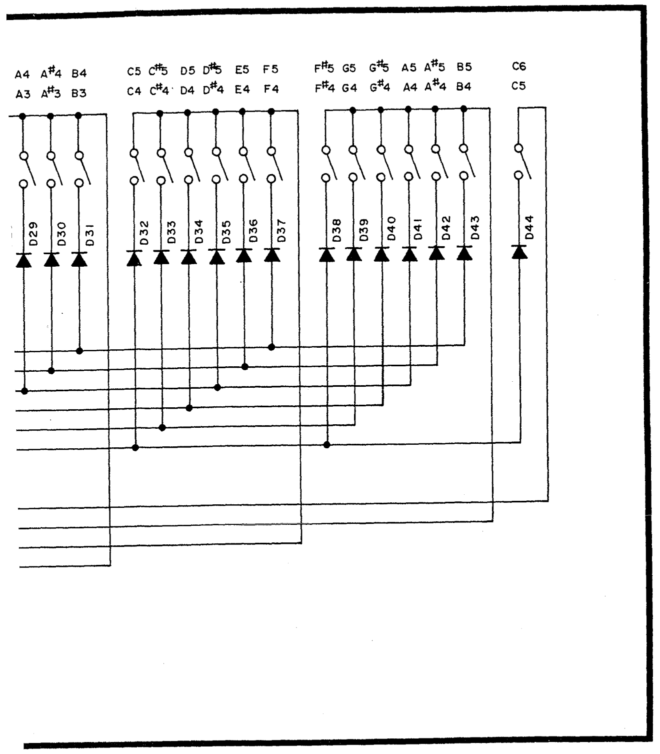


SSPG7001A
SSPG6001A
F
F#
G
G#
A
A#
B
C
C#
D
D#
E
JP3 For LKB
JP1 For UKB
JP4
JP5
CN1
Z1
C2 6V47
C1 0.047
IC1

PKB PEDAL KEYBOARD CIRCUIT BOARD



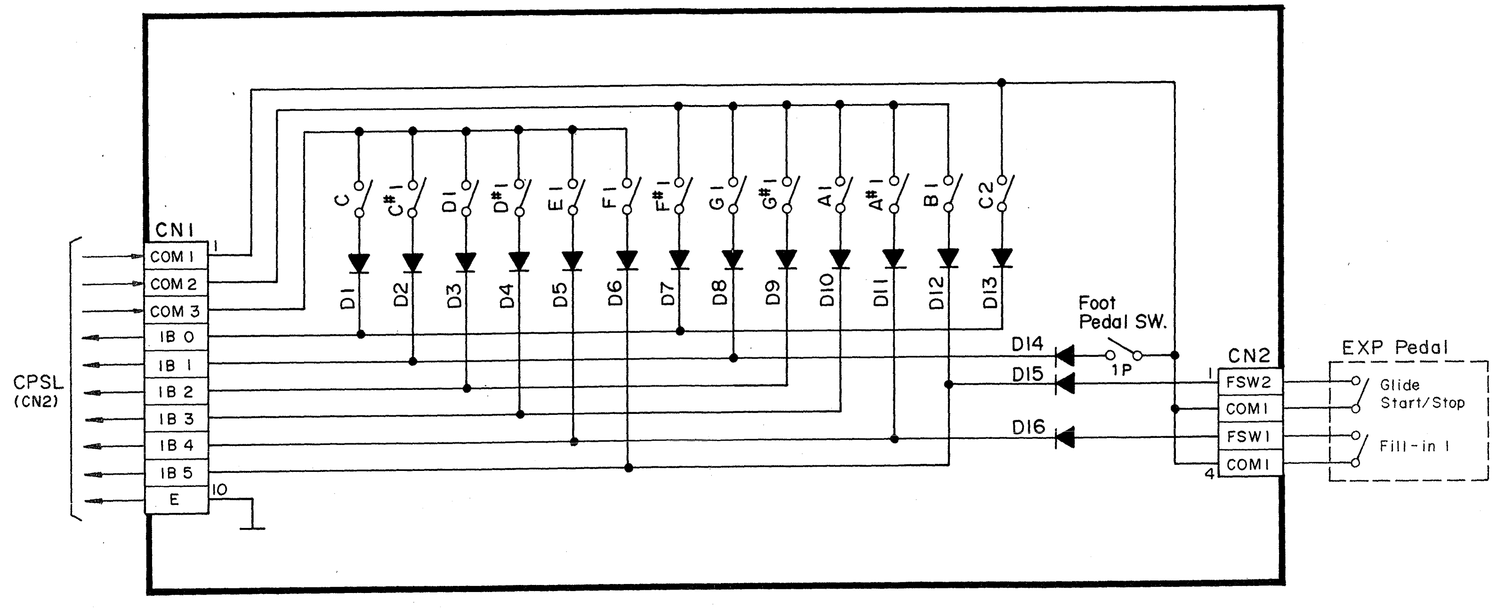
CN1
COM1
COM2
COM3
IB0
IB1
IB2
IB3
IB4
IB5
E
C1
C#
D
D#
E
F
F#
G
G#
A
SHGG50A
SHGG50A
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11



A4 A#4 B4
A3 A#3 B3
C5 C#5 D5 D#5 E5 F5
C4 C#4 D4 D#4 E4 F4
F#5 G5 G#5 A5 A#5 B5
F#4 G4 G#4 A4 A#4 B4
C6
C5
D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44

NOTES:
- IC
  IC1: SVIGM74LS138
- DIODES
  D1~44: MA165TA5

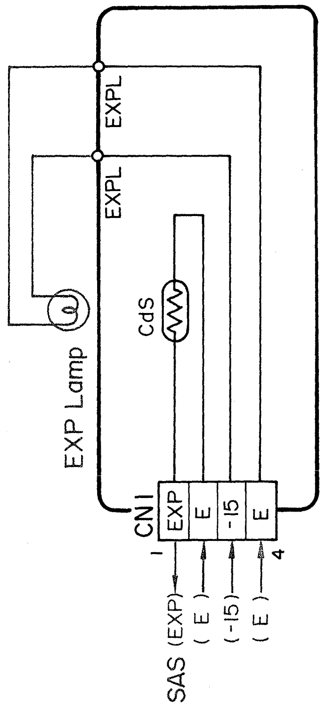
PKB PEDAL KEYBOARD CIRCUIT DIAGRAM



CN1
COM 1
COM 2
COM 3
IB 0
IB 1
IB 2
IB 3
IB 4
IB 5
E
1
10
CPSL (CN2)
C C# D D# E F F# G G# A A# B C2
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13
Foot Pedal SW.
1P
D14
D15
D16
CN2
FSW2
COM1
FSW1
COM1
1
4
EXP Pedal
Glide Start/Stop
Fill-in 1

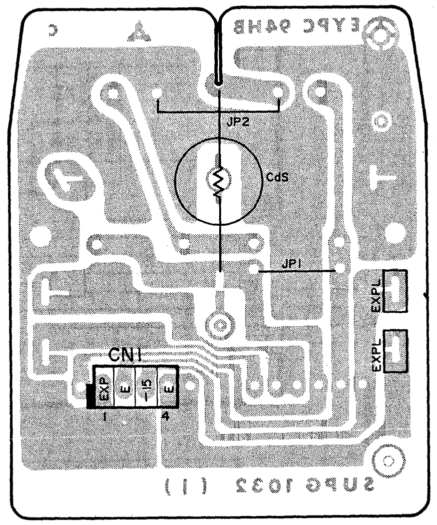
NOTES:
- DIODES
  D1~16: MA162A

EXP EXP CIRCUIT



EXPL
EXPL
EXP Lamp
CdS
CN1
EXP
E
-15
E
1
4
SAS (EXP)
(E)
(-15)
(E)

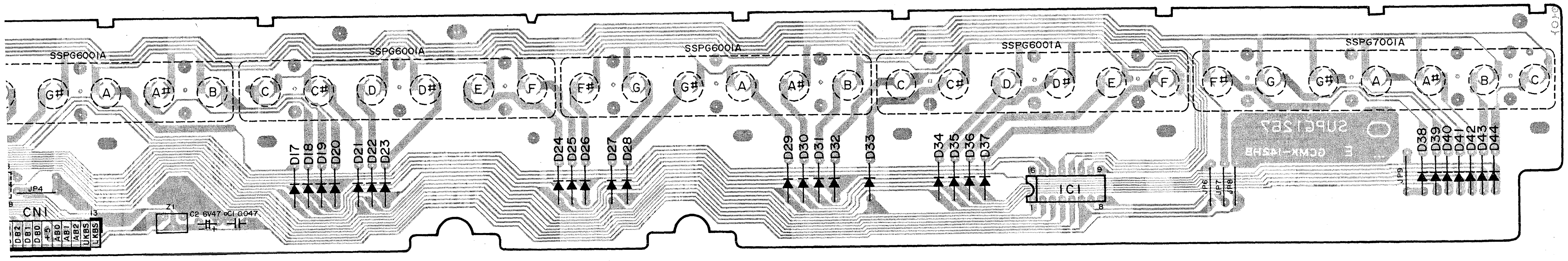
EXP P.C.B. SXPG103211



JP2
CdS
JP1
EXPL
EXPL
CN1
EXP
E
-15
E

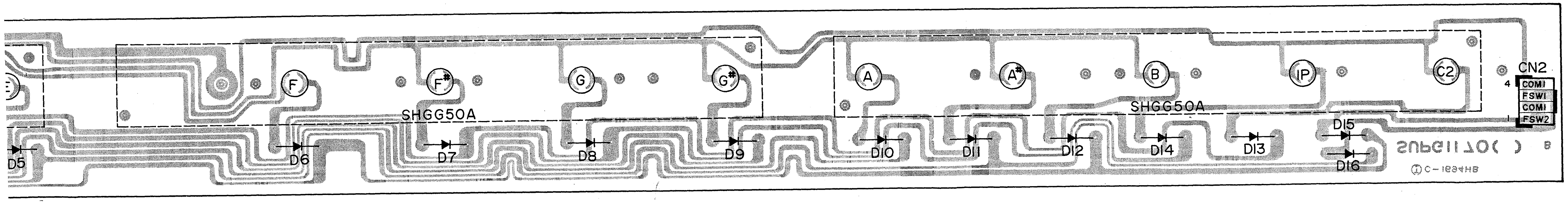
* Upper Keyboard **SXPG126711**

* Lower Keyboard **SXPG126721**



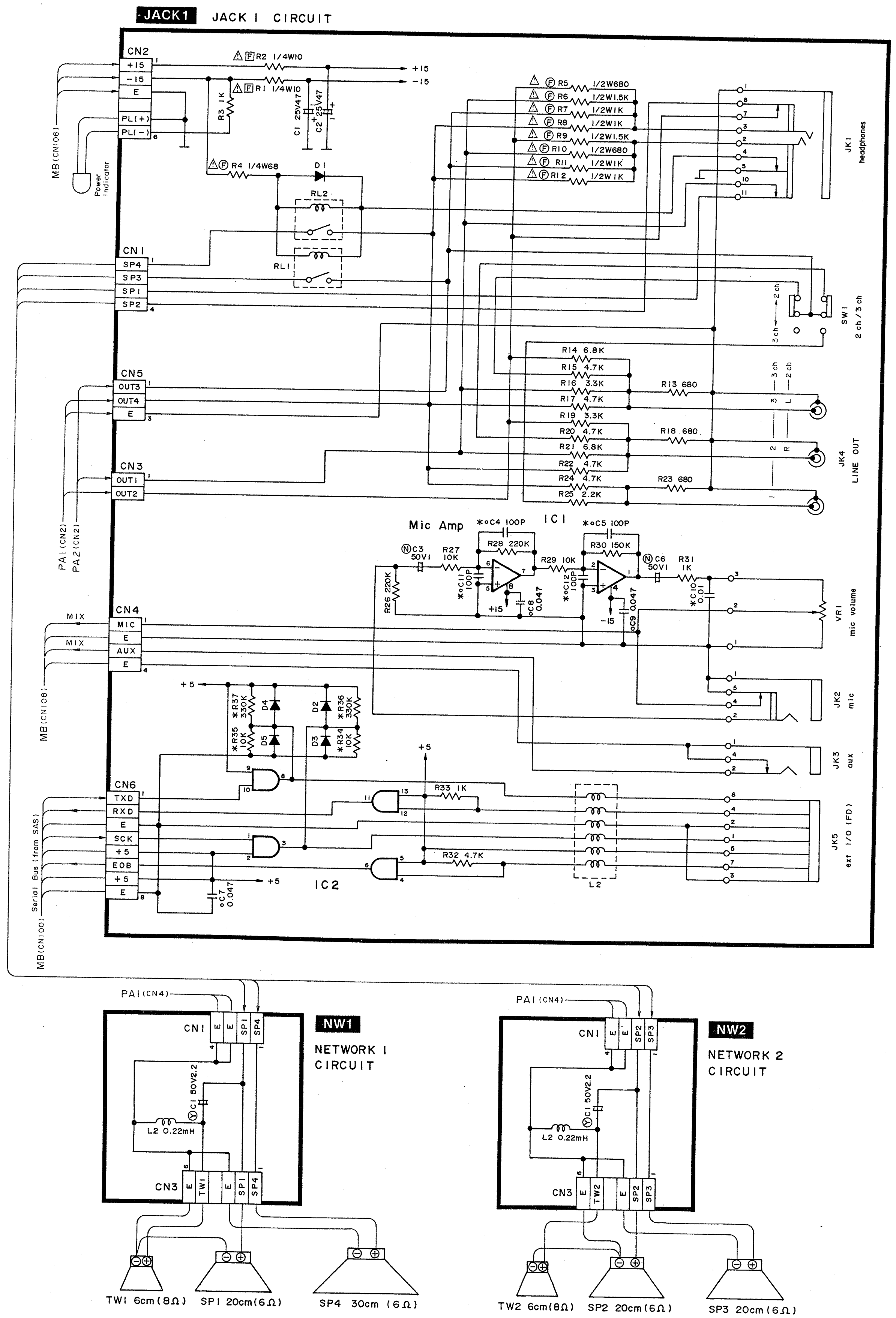
SSPG6001A
SSPG6001A
SSPG6001A
SSPG6001A
SSPG7001A
G# A A# B C C# D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C
D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44
IC1
JP4
CN1

SXPG11702



F F# G G# A A# B IP C2
SHGG50A
SHGG50A
D5 D6 D7 D8 D9 D10 D11 D12 D14 D13 D15 D16
CN2
COM1
FSW1
COM1
FSW2

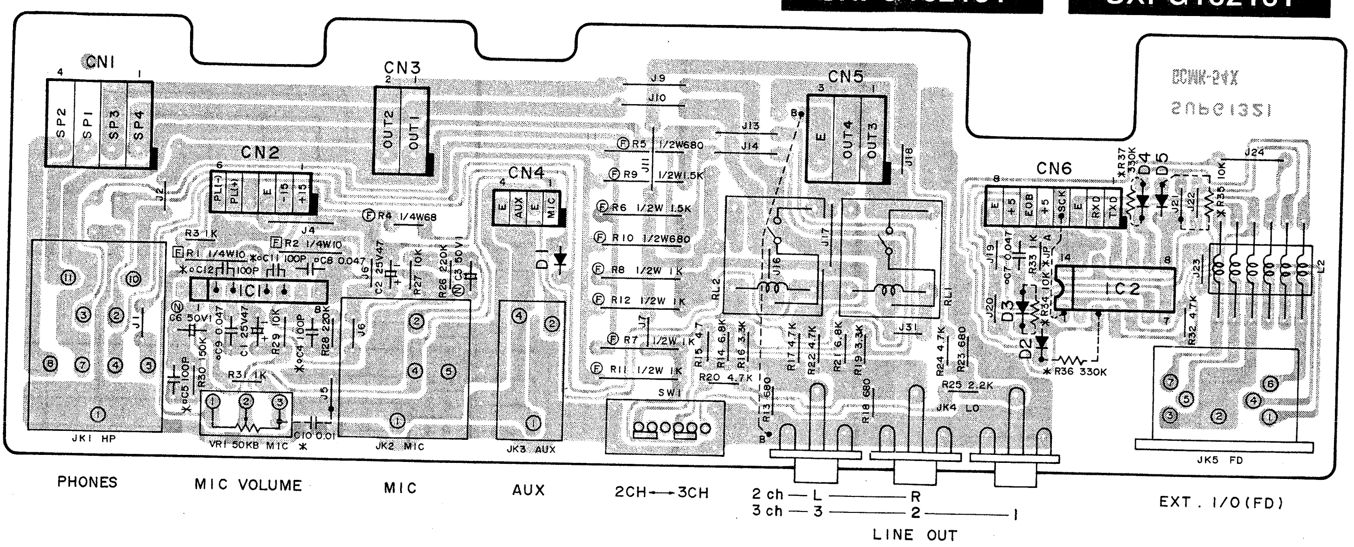
JACK 1 NW JACK 1 & NETWORK CIRCUIT DIAGRAM


JACK1 JACK 1 CIRCUIT
CN2
+15
-15
E
PL(+)
PL(-)
MB(CN106)
Power indicator
R2 1/4W10
R1 1/4W10
R3 1K
R4 1/4W68
C1 25V47
C2 25V47
D1
RL2
RL1
CN1
SP4
SP3
SP1
SP2
R5 1/2W680
R6 1/2W1.5K
R7 1/2W1K
R8 1/2W1K
R9 1/2W1.5K
R10 1/2W680
R11 1/2W1K
R12 1/2W1K
JK1 headphones
SW1 2 ch / 3 ch
CN5
OUT3
OUT4
E
CN3
OUT1
OUT2
PA1(CN2)
PA2(CN2)
R14 6.8K
R15 4.7K
R16 3.3K
R17 4.7K
R19 3.3K
R20 4.7K
R21 6.8K
R22 4.7K
R24 4.7K
R25 2.2K
R13 680
R18 680
R23 680
JK4 LINE OUT
Mic Amp
IC1
C3 50V1
R27 10K
C4 100P
R28 220K
R26 220K
C11 100P
C8 0.047
R29 10K
C12 100P
C5 100P
R30 150K
C6 50V1
R31 1K
C10 0.01
C9 0.047
+15
-15
VR1 mic volume
CN4
MIC
E
AUX
E
MIX
MB(CN108)
JK2 mic
JK3 aux
R37 330K
R35 10K
D4
D5
D2
D3
R36 330K
R34 10K
CN6
TXD
RXD
E
SCK
+5
EOB
+5
E
Serial Bus (from SAS)
MB(CN100)
R33 1K
R32 4.7K
C7 0.047
IC2
L2
JK5 ext I/O (FD)
PA1(CN4)
NW1 NETWORK 1 CIRCUIT
C1 50V2.2
L2 0.22mH
CN3
TW1
TW1 6cm(8Ω)
SP1 20cm(6Ω)
SP4 30cm (6Ω)
NW2 NETWORK 2 CIRCUIT
TW2
TW2 6cm(8Ω)
SP2 20cm(6Ω)
SP3 20cm(6Ω)

JACK 1 JACK 1 CIRCUIT BOARD

* Products for [EZ] SXPG132151

* Other areas SXPG132131


CN1
CN3
CN5
CN2
CN4
CN6
IC1
IC2
RL1
RL2
SW1
JK1 HP
VR1 50KB MIC
JK2 MIC
JK3 AUX
JK4 LO
JK5 FD
PHONES
MIC VOLUME
MIC
AUX
2CH ←→ 3CH
2 ch — L — R
3 ch — 3 — 2 — 1
LINE OUT
EXT. I/O (FD)

* P.C.B. comparison chart by area.

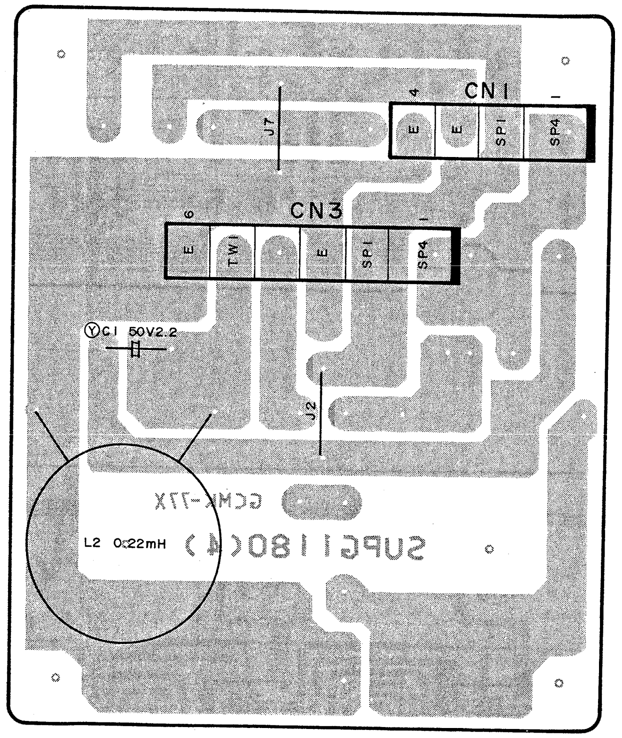
Area	P.C.B. No.	C4, C5	R34~37, C10~12, JPⒶ
EZ	SXPG132151	×	○
Others	SXPG132131	○	×

NOTES:

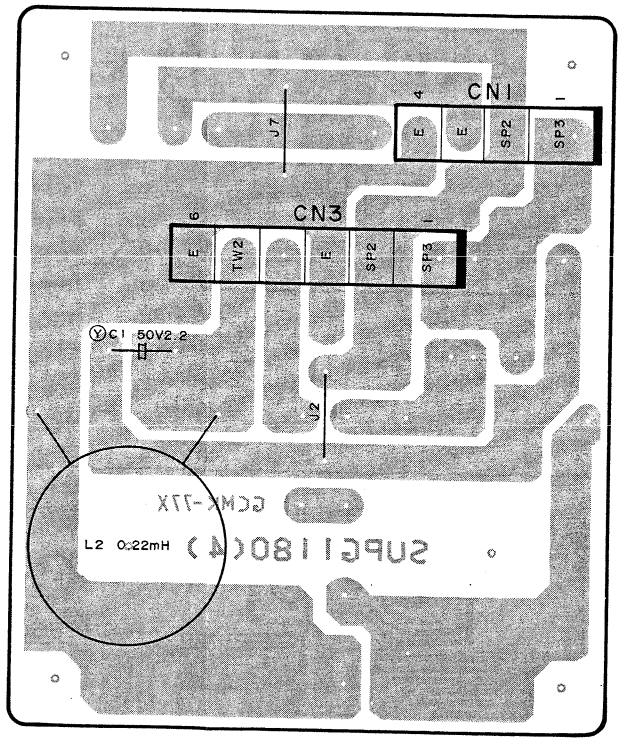
- IC'S
  - IC1: SVIGM5218L
  - IC2: SVIGM74LS09
- DIODES
  - D1~5: MA165TA5

NW NETWORK CIRCUIT BOARD

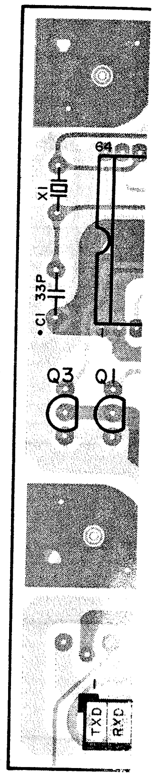
NETWORK 1 SXPG118081


CN1
E
E
SP1
SP4
J7
CN3
TW1
SP1
SP4
C1 50V2.2
J2
L2 0.22mH

NETWORK 2 SXPG118081


CN1
E
E
SP2
SP3
J7
CN3
TW2
SP2
SP3
C1 50V2.2
J2
L2 0.22mH

MD M

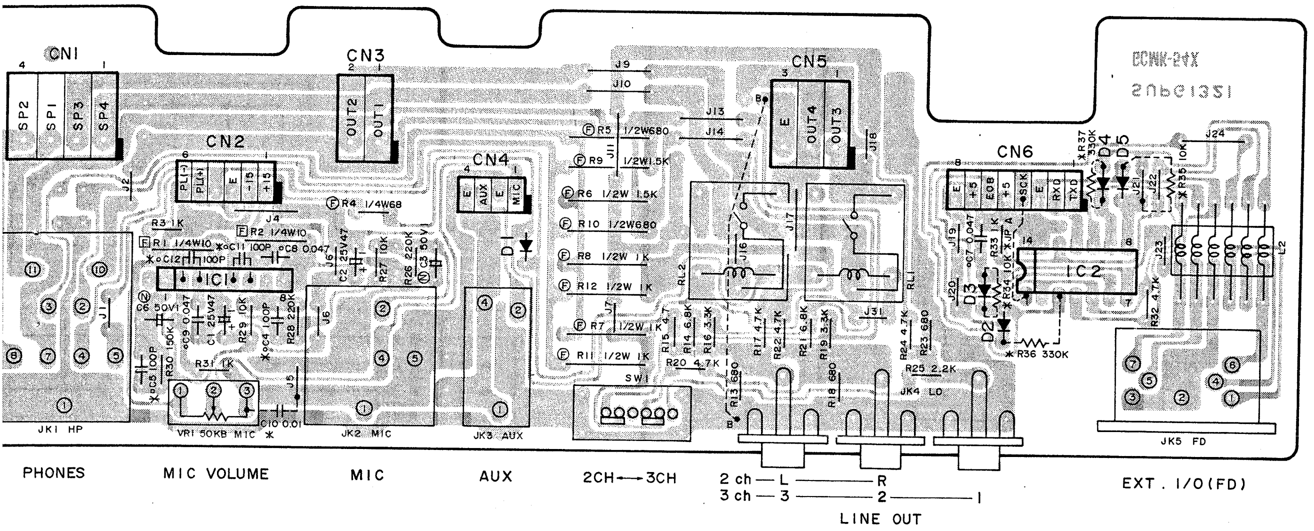

64
X1
C1 33P
Q3
Q1
TXD
RXD

CK 1 JACK 1 CIRCUIT BOARD

1 2 3 4 5

* Products for [EZ] **SXPG132151**

* Other areas **SXPG132131**


CN1
CN2
CN3
CN4
CN5
CN6
SP2
SP1
SP3
SP4
OUT2
OUT1
OUT4
OUT3
IC1
IC2
RL1
RL2
SW1
J9
J10
J13
J14
J16
J17
J24
GCMK-24X
SUPG1321
JK1 HP
VR1 50KB MIC
JK2 MIC
JK3 AUX
JK4 LO
JK5 FD
PHONES
MIC VOLUME
MIC
AUX
2CH ⟷ 3CH
2 ch — L — R
3 ch — 3 — 2 — 1
LINE OUT
EXT. I/O (FD)

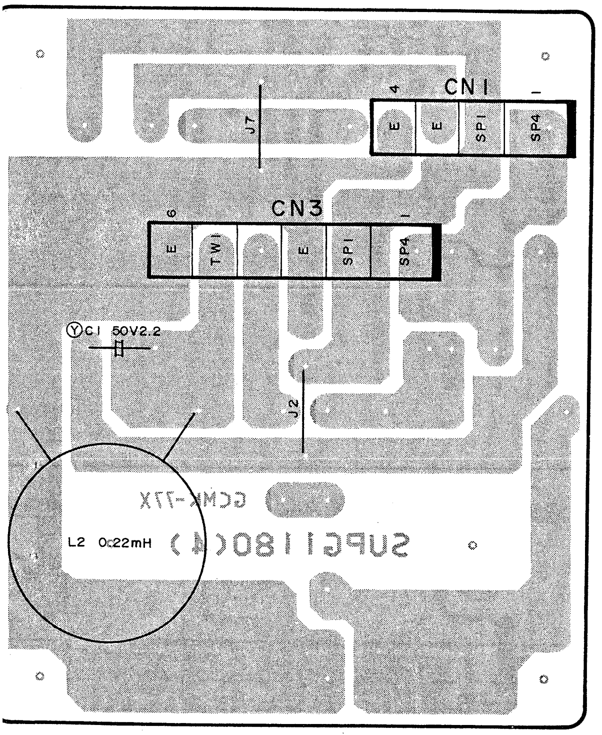
* P.C.B. comparison chart by area.

Area	P.C.B. No.	C4, C5	R34~37, C10~12, JPⒶ
EZ	SXPG132151	×	○
Others	SXPG132131	○	×

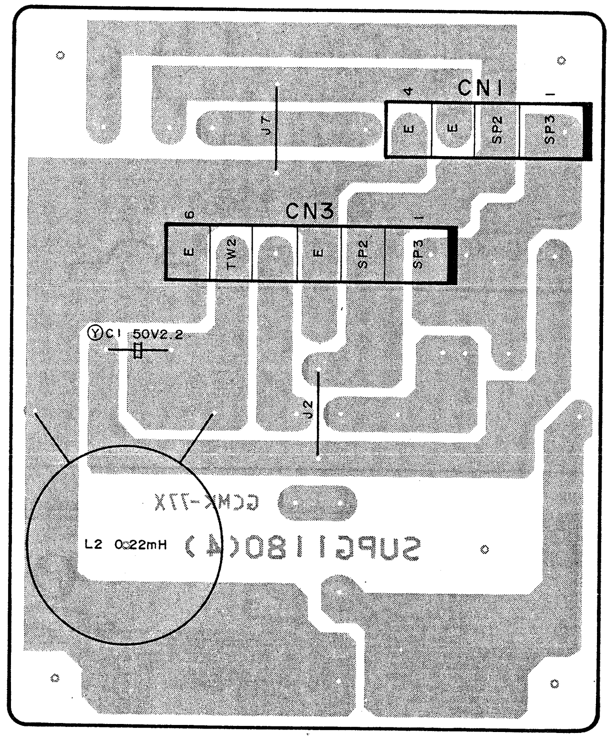
NOTES:
- IC'S
  - IC1: SVIGM5218L
  - IC2: SVIGM74LS09
- DIODES
  - D1~5: MA165TA5

NW NETWORK CIRCUIT BOARD

NETWORK 1 **SXPG118081**


CN1
4
E
E
SP1
SP4
J7
CN3
6
E
TW1
E
SP1
SP4
Ⓨ C1 50V2.2
J2
GCMK-77X
L2 0.22mH
SUPG1180(4)

NETWORK 2 **SXPG118081**


CN1
4
E
E
SP2
SP3
J7
CN3
6
E
TW2
E
SP2
SP3
Ⓨ C1 50V2.2
J2
GCMK-77X
L2 0.22mH
SUPG1180(4)

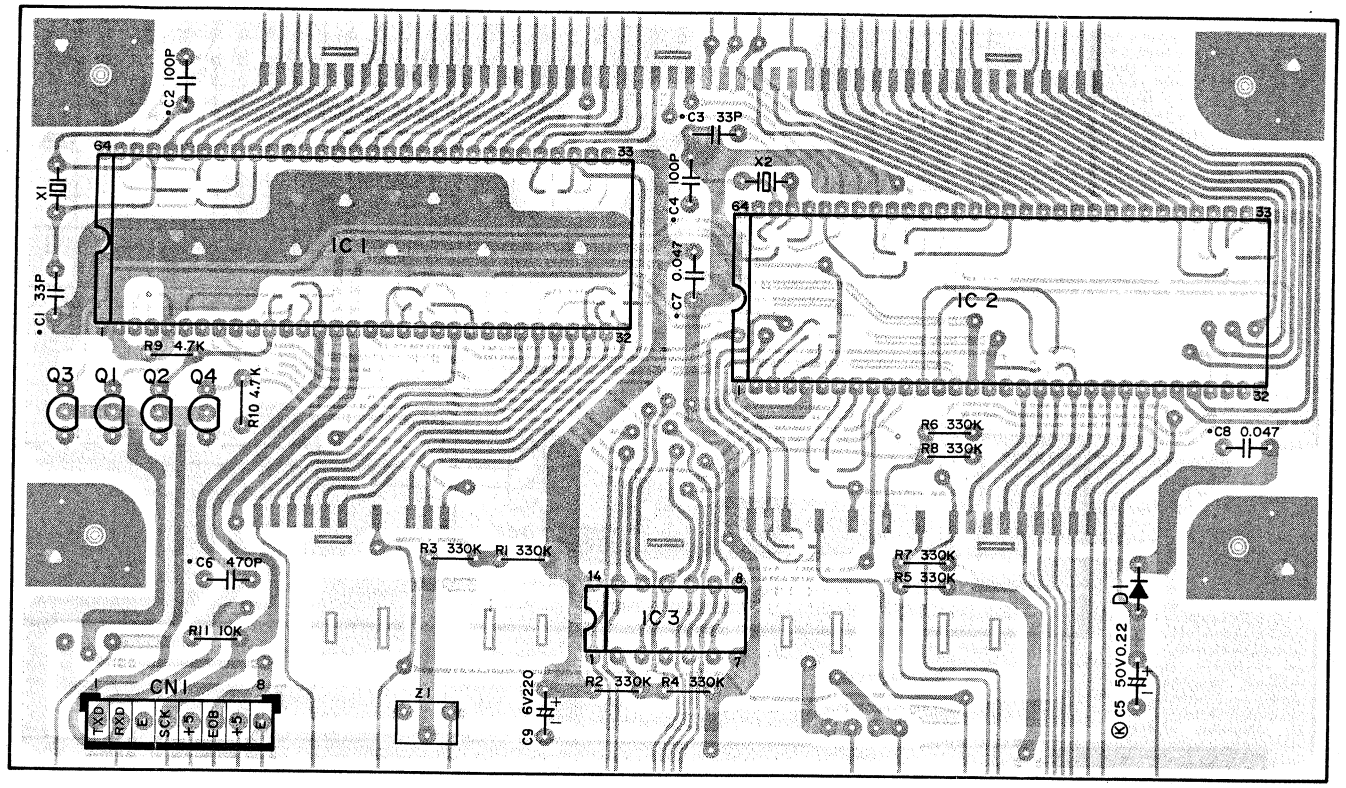
MD MUSICAL DISPLAY CIRCUIT BOARD

1 2 3 4 5

A
B
C
D
E
F

Circuit view on top of P.C.B

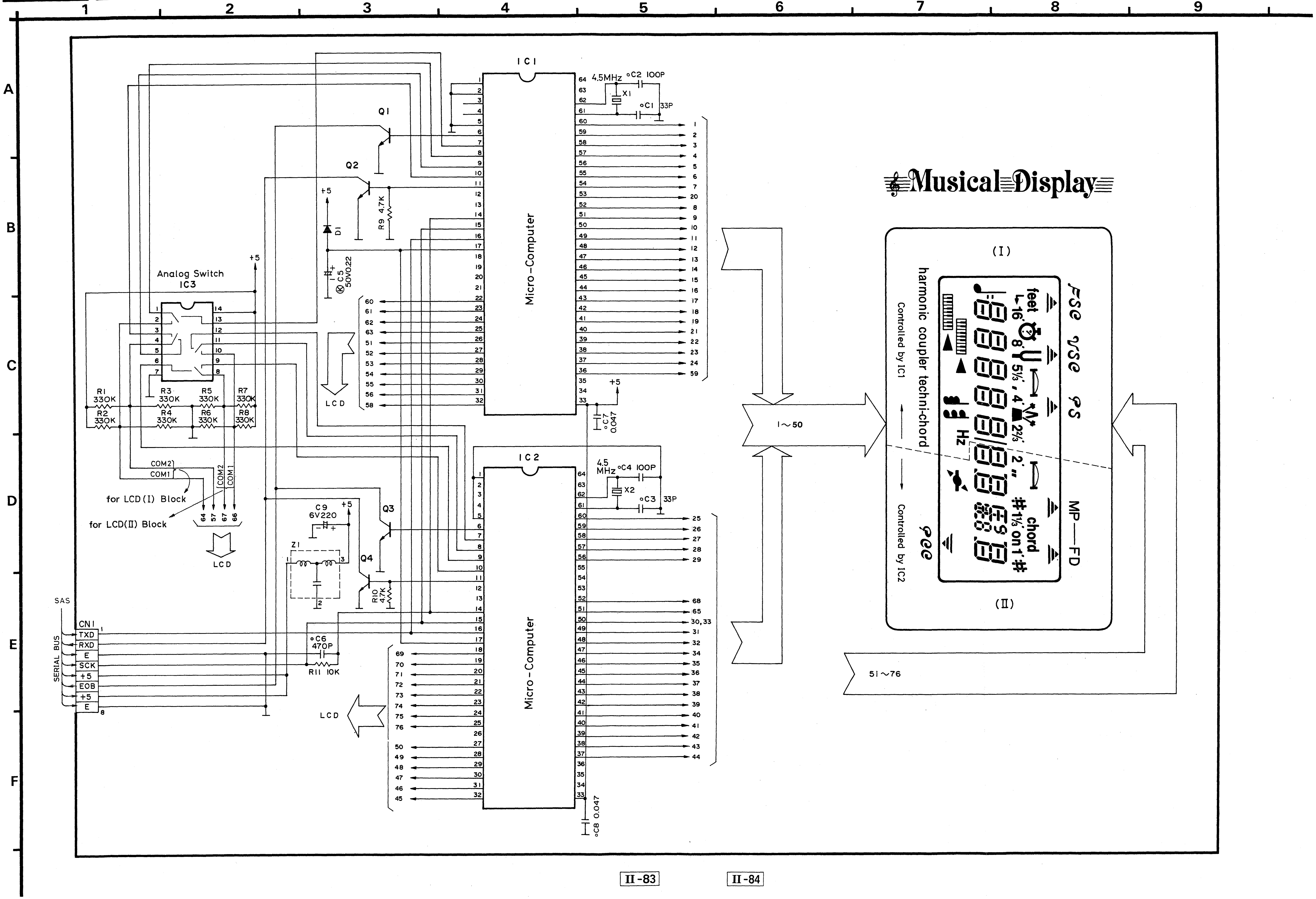
SXEG33A


C2 100P
C3 33P
C4 100P
X1
X2
64
33
IC1
IC2
C1 33P
C7 0.047
32
R9 4.7K
Q3
Q1
Q2
Q4
R10 4.7K
R6 330K
R8 330K
C8 0.047
C6 470P
R3 330K
R1 330K
R7 330K
R5 330K
14
8
IC3
7
R11 10K
CN1
1
8
TXD
RXD
E
SCK
+5
EOB
+5
E
Z1
C9 6V220
R2 330K
R4 330K
D1
C5 50V0.22
Ⓚ

NOTES:
- IC'S
  - IC1, 2: MN15621PGA
  - IC3: SVIGUPD4066B
- TRANSISTORS
  - Q1, 3: 2SC1685R
  - Q2, 4: 2SC1047C
- DIODES
  - D1: MA165TA5

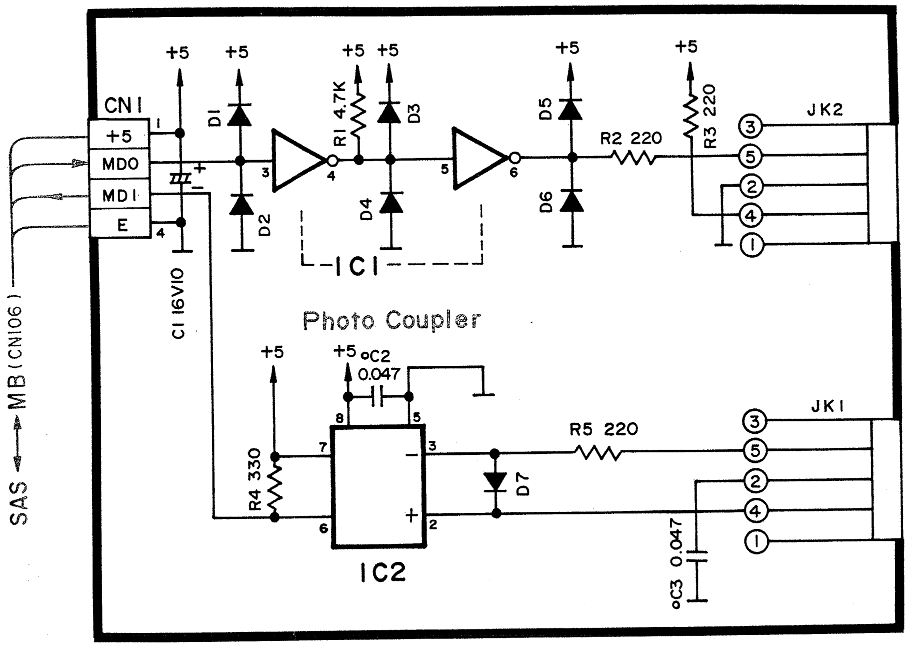
MD

MUSICAL DISPLAY CIRCUIT DIAGRAM

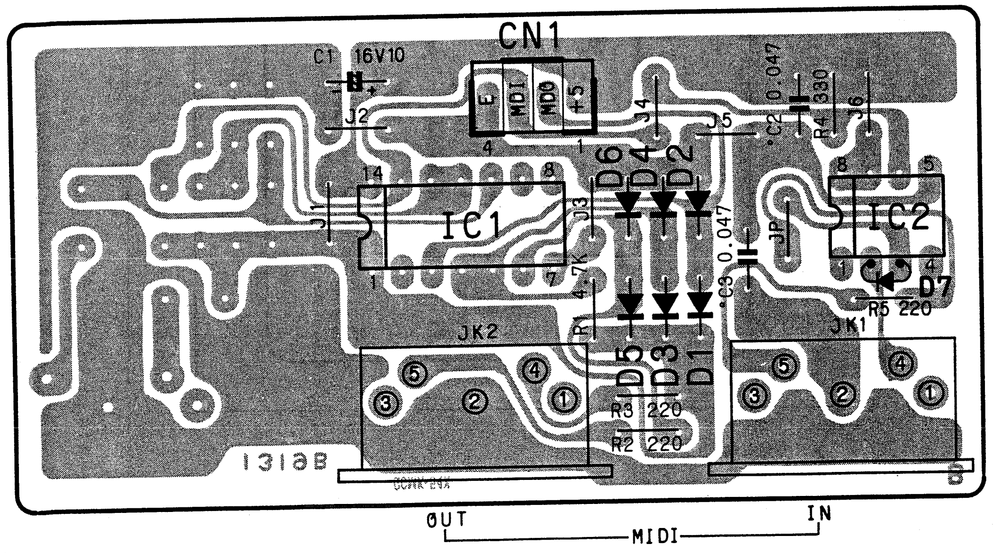

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
IC1
IC2
Micro-Computer
Micro-Computer
4.5MHz
C2 100P
X1
C1 33P
4.5 MHz
C4 100P
X2
C3 33P
Q1
Q2
Q3
Q4
+5
D1
R9 4.7K
R10 4.7K
C5 50V0.22
Analog Switch
IC3
R1 330K
R2 330K
R3 330K
R4 330K
R5 330K
R6 330K
R7 330K
R8 330K
COM2
COM1
for LCD(I) Block
for LCD(II) Block
LCD
C7 0.047
C8 0.047
C9 6V220
Z1
C6 470P
R11 10K
SAS
SERIAL BUS
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
1~50
51~76
Musical Display
(I)
(II)
harmonic coupler techni-chord
Controlled by IC1
Controlled by IC2
feet
chord
Hz
MP—FD

JACK 2

JACK 2 CIRCUIT


CN1
+5
MDO
MDI
E
SAS ←→ MB (CN106)
C1 16V10
D1
D2
R1 4.7K
D3
D4
IC1
Photo Coupler
D5
D6
R2 220
R3 220
JK2
MIDI OUT
+5
C2 0.047
R4 330
IC2
D7
R5 220
JK1
MIDI IN
C3 0.047

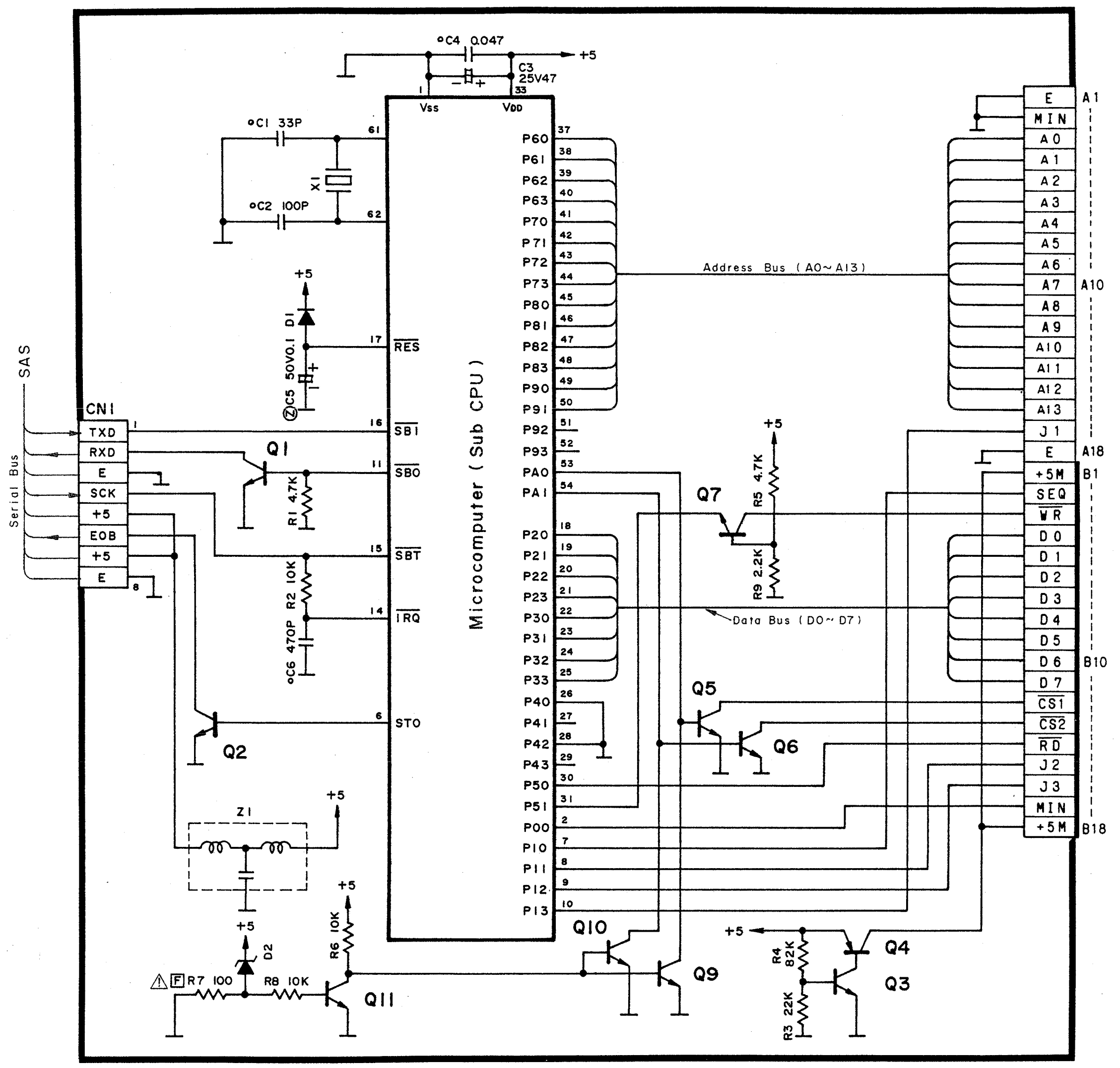
SXPG131911B


CN1
C1 16V10
IC1
IC2
JK2
JK1
D1
D2
D3
D4
D5
D6
D7
R3 220
R2 220
R5 220
R4 330
C2 0.047
C3 0.047
OUT
MIDI
IN

NOTES:
- IC'S
  - IC1: SVIGM74LS05
  - IC2: SVIGTLP552
- DIODES
  - D1~7: MA165TA5

MPC

MEMORY PACK CONTROL CIRCUIT DIAGRAM


C4 0.047
C3 25V47
C1 33P
C2 100P
X1
D1
C5 50V0.1
Q1
R1 4.7K
R2 10K
C6 470P
Q2
Z1
D2
R7 100
R8 10K
R6 10K
Q11
Q10
Q9
Q7
R5 4.7K
R9 2.2K
Q5
Q6
R4 82K
R3 22K
Q4
Q3
CN1
TXD
RXD
SCK
EOB
SAS
Serial Bus
Microcomputer (Sub CPU)
Address Bus (A0~A13)
Data Bus (D0~D7)
A1
A10
A18
B1
B10
B18

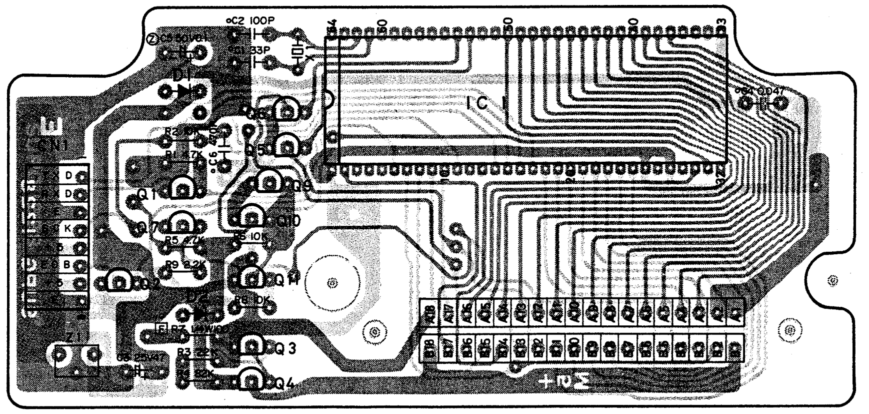
NOTES:
- IC
  - IC1: MN15621PGB
- DIODES
  - D1: MA165TA5
  - D2: MA1036H
- TRANSISTORS
  - Q1, 2, 7: 2SC1047C
  - Q3, 5, 6, 9~11: 2SC2320LFG
  - Q4: 2SA1015GR

MPC

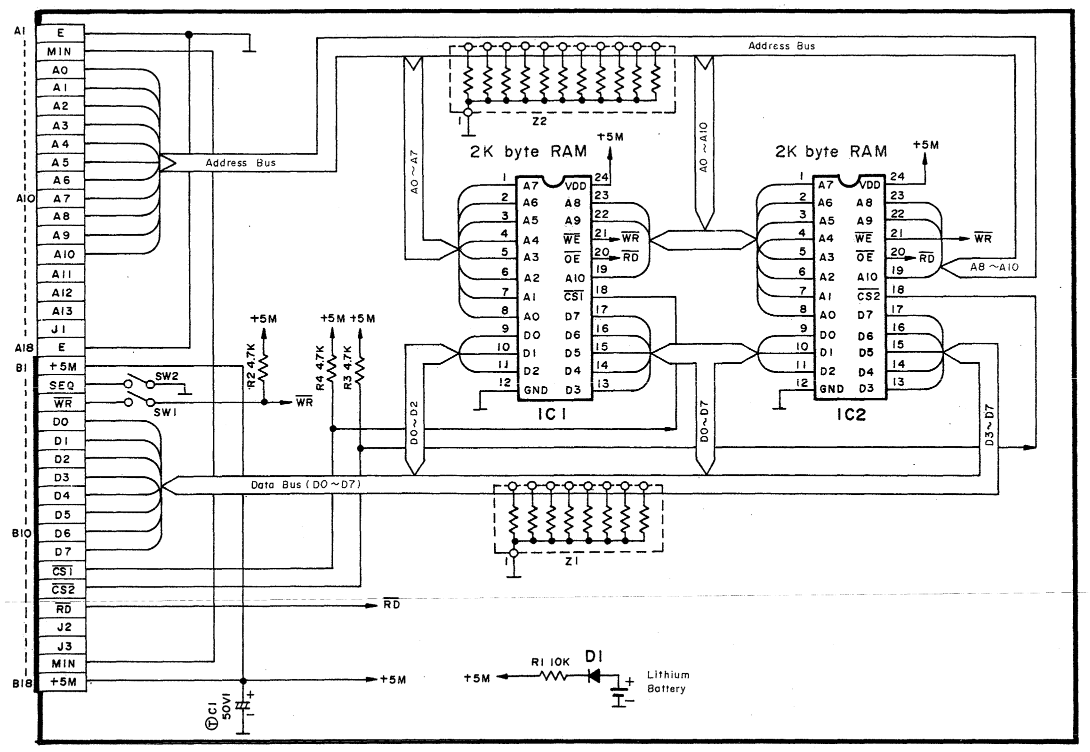
MEMORY PACK CONTROL CIRCUIT BOARD

Circuit view on top of P.C.B

SXPG12281

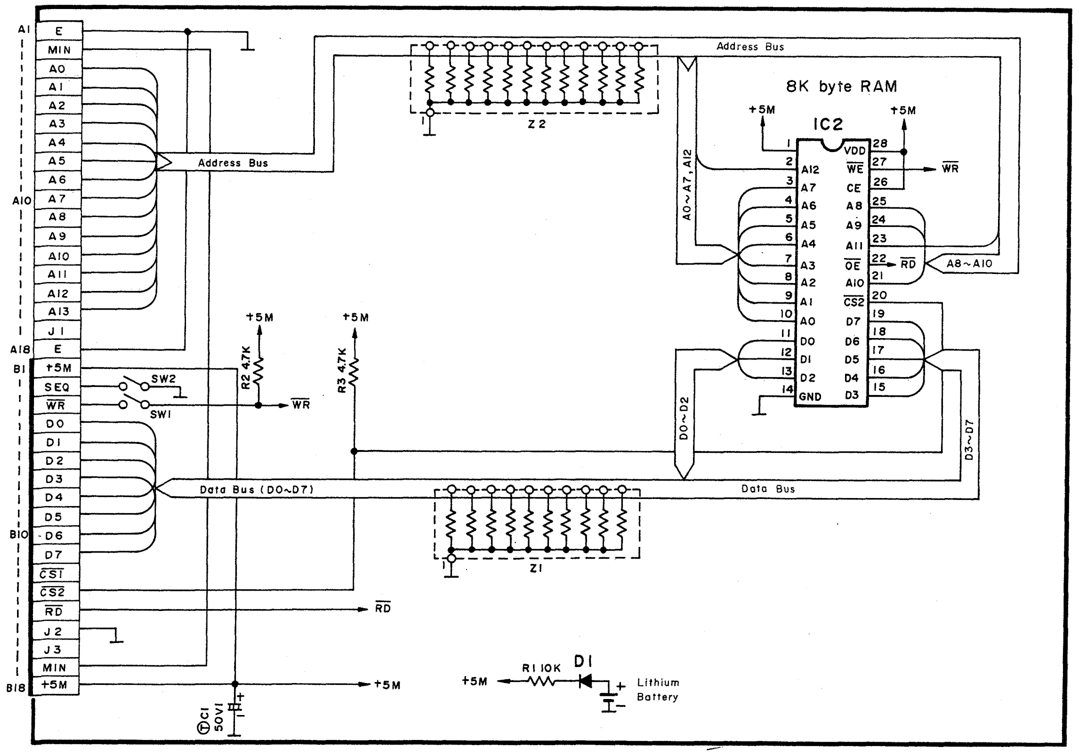


SY-P2


E
MIN
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13
J1
E
+5M
SEQ
WR
D0 D1 D2 D3 D4 D5 D6 D7
CS1
CS2
RD
J2
J3
MIN
+5M
A1 A10 A18 B1 B10 B18
Address Bus
Z2
A0～A7
A0～A10
2K byte RAM
2K byte RAM
+5M
IC1
IC2
A8～A10
WR
RD
R2 4.7K
R4 4.7K
R3 4.7K
SW2
SW1
D0～D2
D0～D7
D3～D7
Data Bus (D0～D7)
Z1
C1 50V1
R1 10K
D1
Lithium Battery

NOTES:
- IC'S
  IC1, 2: SVIGM512820R
- DIODE
  D1: MA165TA5

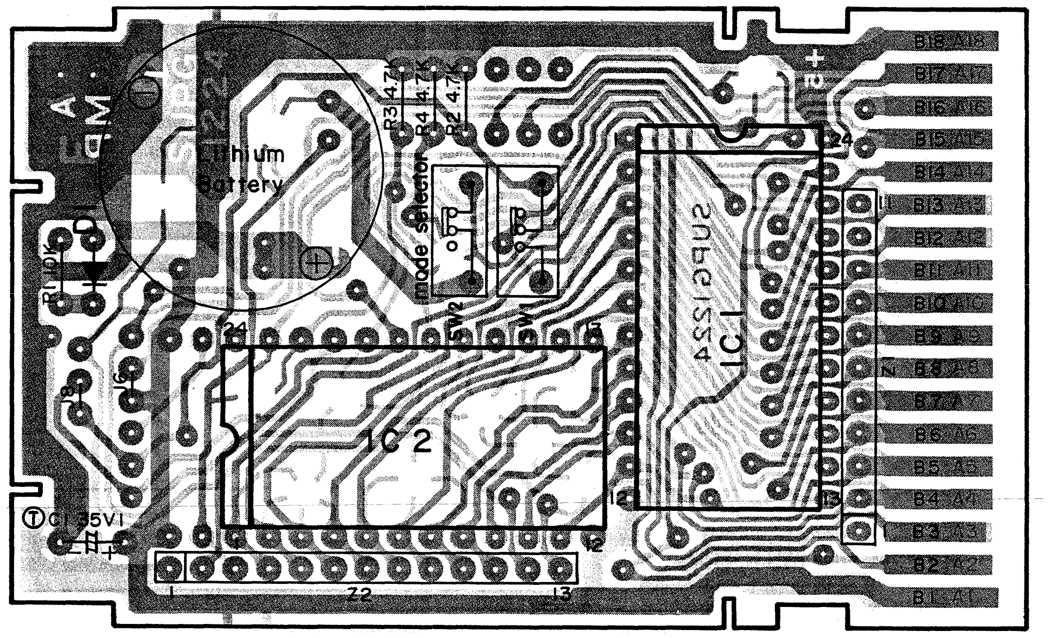
SY-P3


E
MIN
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13
J1
E
+5M
SEQ
WR
D0 D1 D2 D3 D4 D5 D6 D7
CS1
CS2
RD
J2
J3
MIN
+5M
A1 A10 A18 B1 B10 B18
Address Bus
Z2
8K byte RAM
IC2
+5M
A0～A7, A12
A8～A10
WR
RD
R2 4.7K
R3 4.7K
SW2
SW1
D0～D2
D3～D7
Data Bus (D0～D7)
Data Bus
Z1
C1 50V1
R1 10K
D1
Lithium Battery

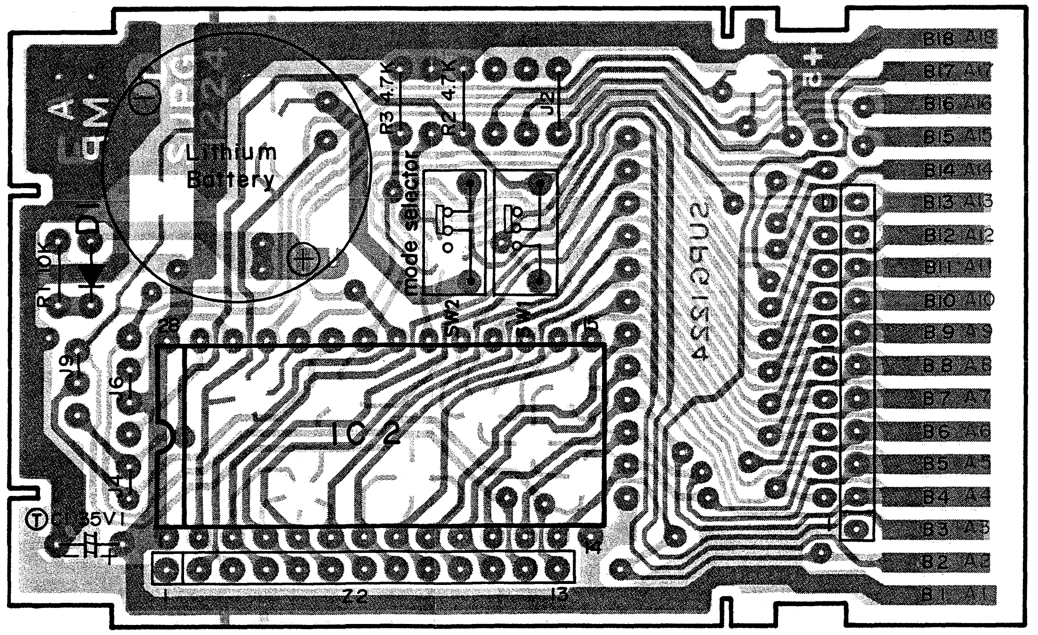
NOTES:
- IC
  IC1: SVIG6264LP15
- DIODE
  D1: MA165TA5

Circuit view on top of P.C.B

SY-P2 SXPG12241


Lithium Battery
R3 4.7K
R4 4.7K
R2 4.7K
mode selector
SW2
SW1
IC1
IC2
R1 10K
D1
C1 35V1
Z2
B18 A18
B1 A1

SY-P3 SXPG12242

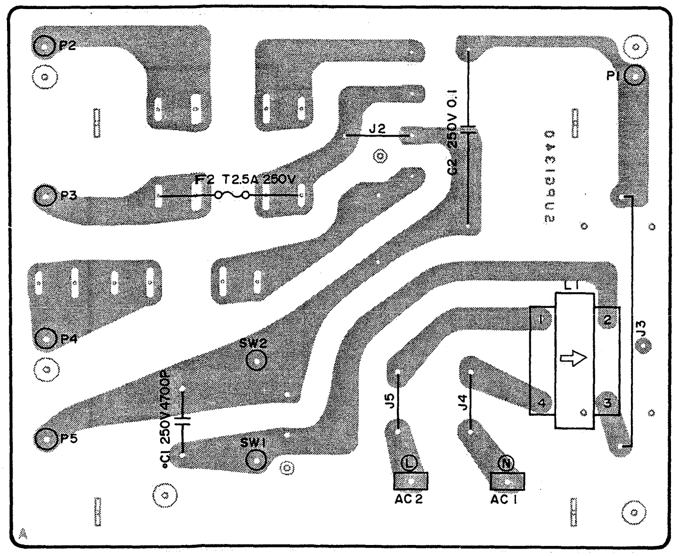

Lithium Battery
R3 4.7K
R2 4.7K
mode selector
SW2
SW1
IC2
R1 10K
D1
C1 35V1
Z2
B18 A18
B1 A1

AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER 1, 2 CIRCUIT BOARD

■ AC POWER SUPPLY CIRCUIT BOARD

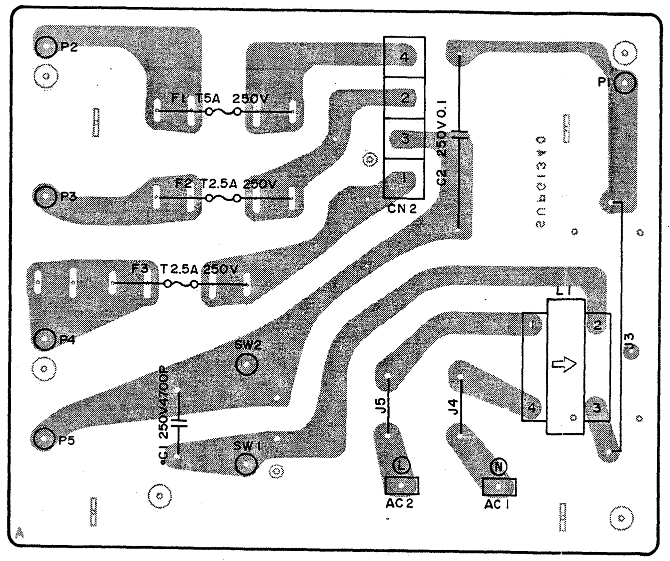
• Products for (EN), (EI), (EH), (EB), (EF), (EW), (EL), (EP)

SXPG134011


P2
P1
P3
P4
P5
J2
J3
J4
J5
F2 T2.5A 250V
C2 250V 0.1
C1 250V 4700P
L1
SW1
SW2
AC 2
AC 1

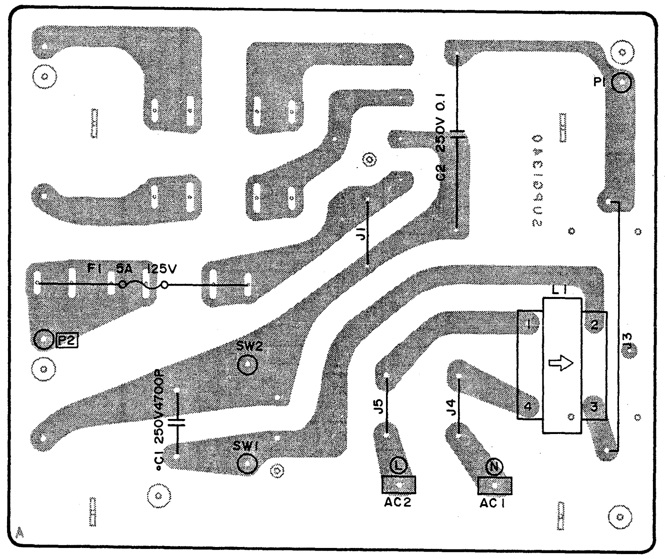
• Products for (EK), (XL), (XR), (XS), (X), (XV), (XX)

SXPG134021


P2
P1
P3
P4
P5
F1 T5A 250V
F2 T2.5A 250V
F3 T2.5A 250V
CN2
C2 250V 0.1
C1 250V 4700P
L1
SW1
SW2
J3
J4
J5
AC 2
AC 1

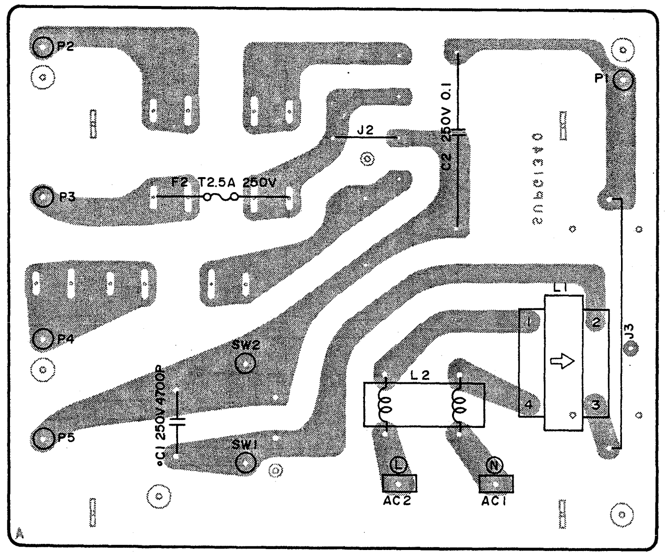
• Products for (MC), (XT)

SXPG134031


P1
P2
F1 5A 125V
J1
C2 250V 0.1
C1 250V 4700P
L1
SW1
SW2
J3
J4
J5
AC2
AC1

• Products for (EZ)

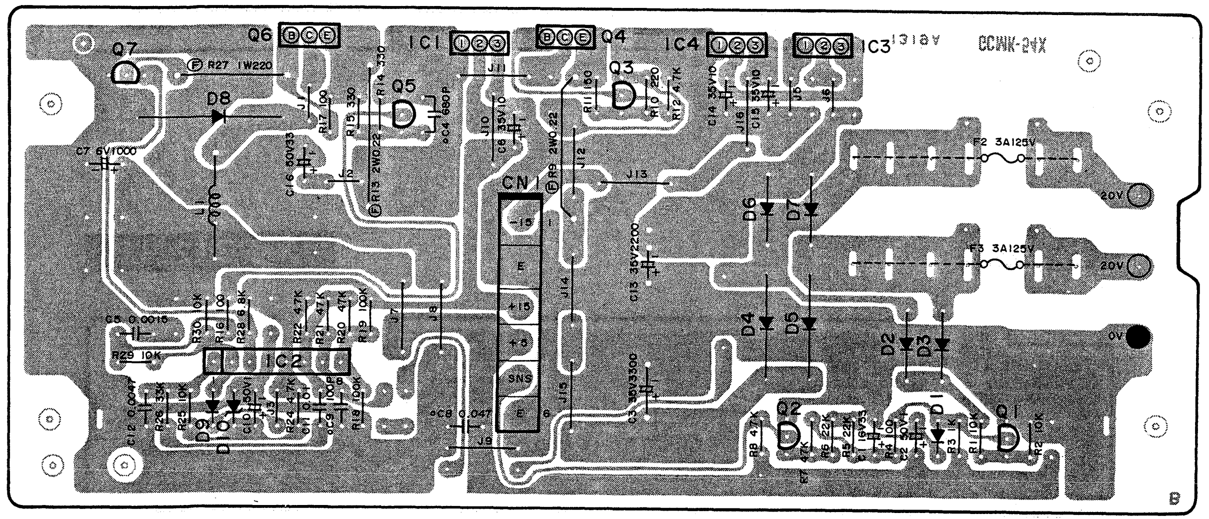
SXPG134051


P2
P1
P3
P4
P5
J2
F2 T2.5A 250V
C2 250V 0.1
C1 250V 4700P
L1
L2
SW1
SW2
J3
AC2
AC1

■ POWER SUPPLY CIRCUIT BOARD

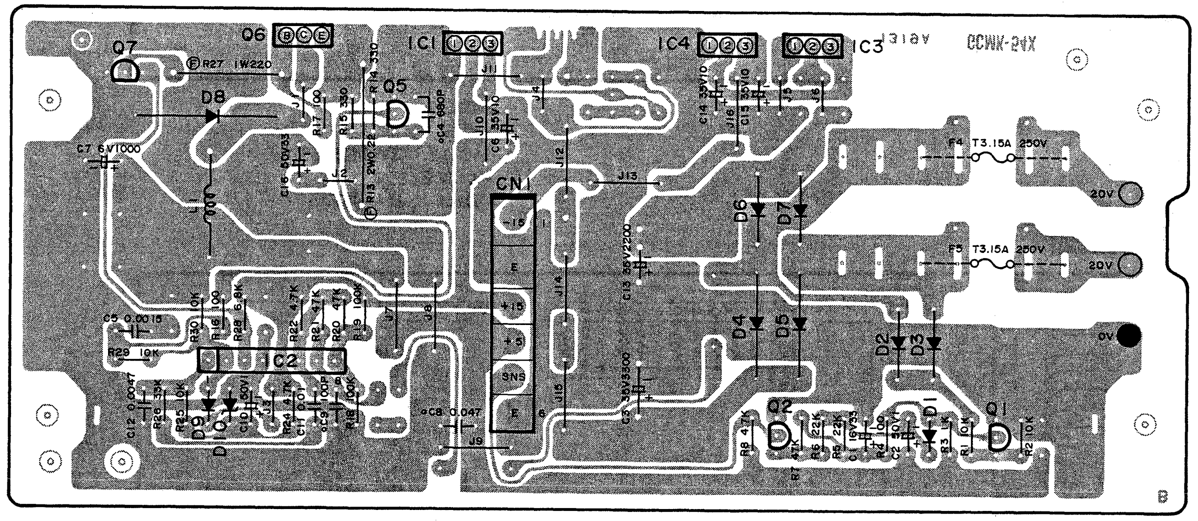
• Products for (MC), (XT)

SXPG1319141A


Q6
IC1
Q4
IC4
IC3
Q7
R27 1W220
D8
Q5
Q3
C7 6V1000
F2 3A125V
F3 3A125V
20V
20V
0V
CN1
D6
D7
D4
D5
D2
D3
IC2
C5 0.0015
R29 10K
Q2
Q1
D1

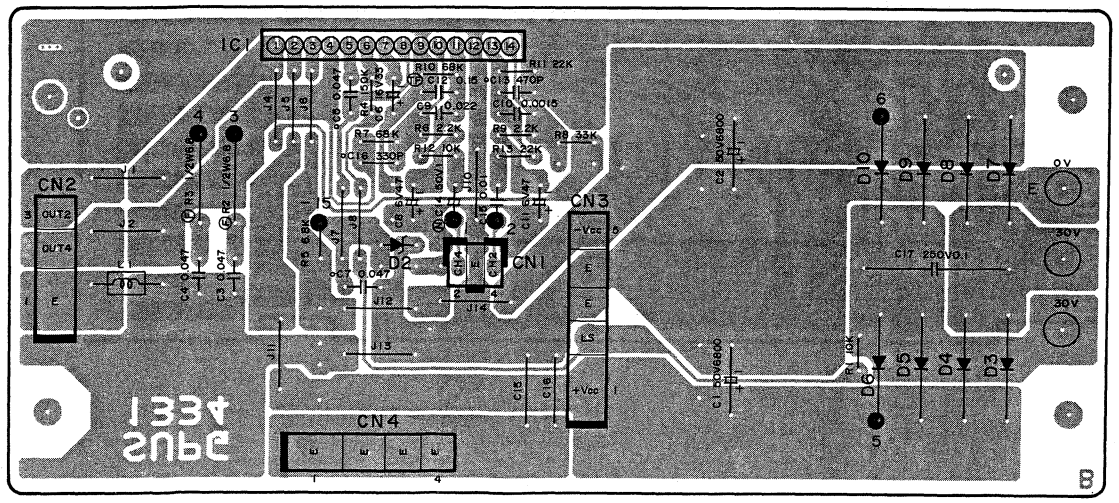
• Other areas

SXPG1319131A


Q6
IC1
IC4
IC3
Q7
R27 1W220
D8
Q5
C7 6V1000
F4 T3.15A 250V
F5 T3.15A 250V
20V
20V
0V
CN1
D6
D7
D4
D5
D2
D3
IC2
C5 0.0015
R29 10K
Q2
Q1
D1

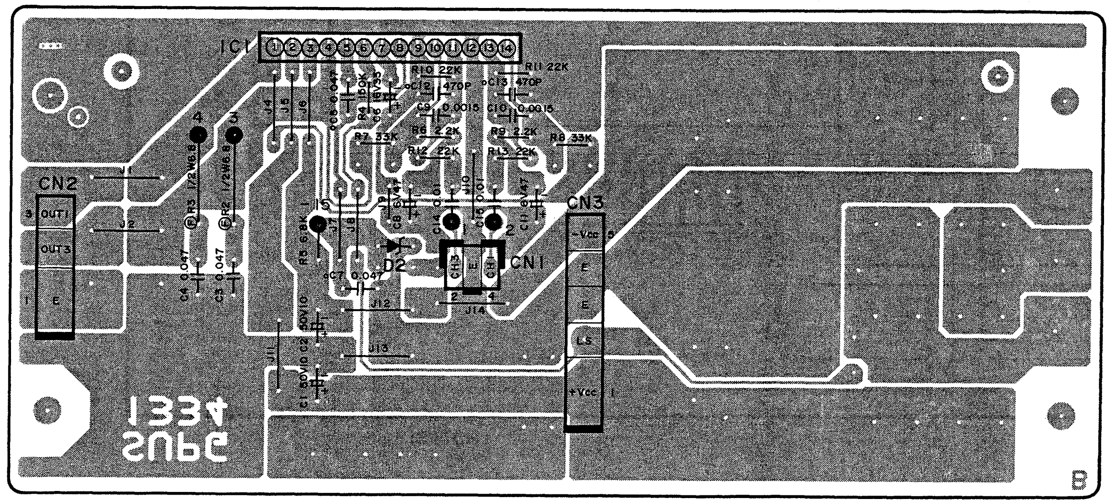
■ POWER AMPLIFIER 1 CIRCUIT BOARD

SXPG133421


IC1
CN2
CN3
CN1
CN4
D10
D9
D8
D7
D6
D5
D4
D3
D2
C17 250V 0.1
0V
30V
30V
OUT2
OUT4
-Vcc
+Vcc
1334
SUPG

■ POWER AMPLIFIER 2 CIRCUIT BOARD

SXPG133431


IC1
CN2
CN3
CN1
D2
OUT1
OUT3
-Vcc
+Vcc
1334
SUPG

ACP PS PA1 PA2 AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER 1, 2 CIRCUIT DIAGRAM

PS

NOTES:

- IC'S
  IC1: AN7815
  IC2: SVIGM51207L
  IC3: AN7924F
  IC4: AN7915F
- TRANSISTORS
  Q1, 2, 7: 2SC2320LFG
  Q3 **MC** **XT**: 2SA933STRS
  Q4 **MC** **XT**: 2SB951A
  Q5: 2SA933STRS
  Q6: 2SB953A
- DIODES
  D1, 9: MA165TA5
  D2, 3, 6, 7: SVDGSM1A02LF
  D4, 5: SVDS2V20
  D8: SVDGERC9102
  D10: MA4051M
- FUSES
  F2, 3 **MC** **XT**: XBA1F30NU14
  F4, 5: XBA2C31TB0

PA1

NOTES:

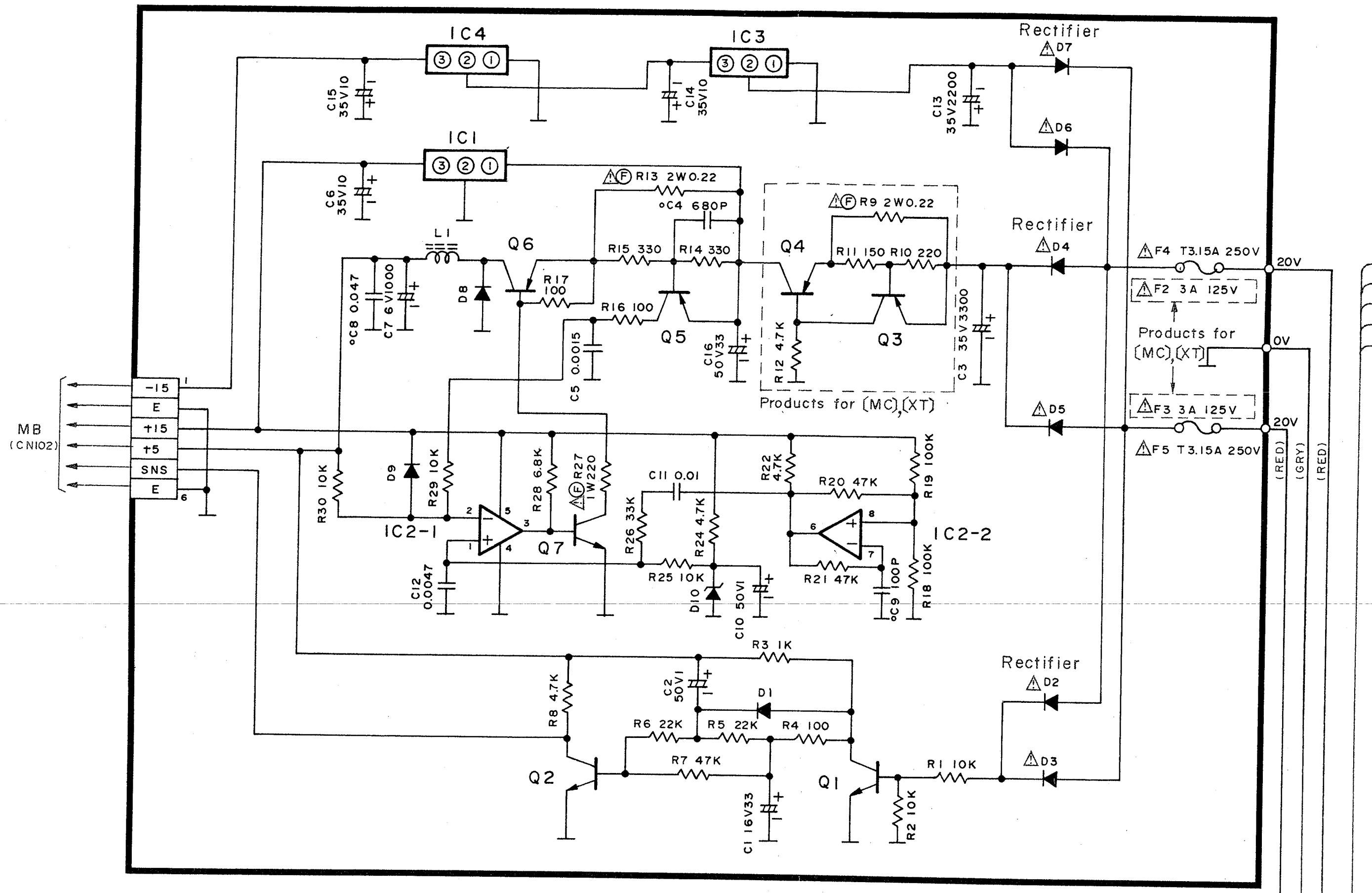
- IC
  IC1: SVI3102
- DIODES
  D2: MA4150M
  D3~10: SVDS3V20

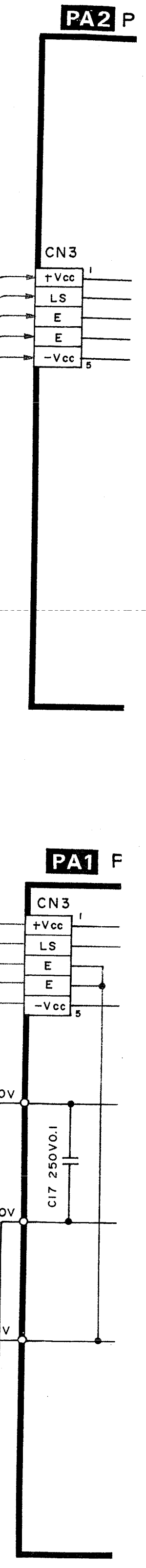
PA2

NOTES

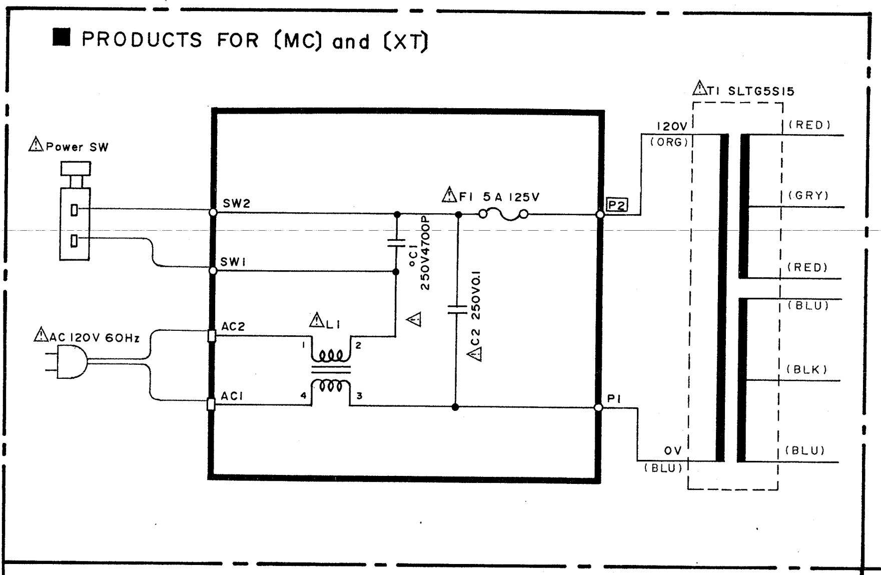
- IC
  IC1: SVI3102
- DIODE
  D2: MA4150M

PS POWER SUPPLY CIRCUIT


IC4
IC3
IC1
Rectifier
D7
D6
D4
D5
D3
D2
C15 35V10
C14 35V10
C13 35V2200
C6 35V10
L1
Q6
R13 2W0.22
C4 680P
R9 2W0.22
R15 330
R14 330
Q4
R11 150 R10 220
D8
R17 100
R16 100
Q5
Q3
C8 0.047
C7 6V1000
C5 0.0015
C16 50V33
R12 4.7K
C3 35V3300
Products for (MC),(XT)
F4 T3.15A 250V
F2 3A 125V
Products for (MC),(XT)
F3 3A 125V
F5 T3.15A 250V
20V
0V
20V
MB (CN102)
-15
E
+15
+5
SNS
E
D9
R29 10K
R28 6.8K
R27 1W220
C11 0.01
R22 4.7K
R20 47K
R19 100K
R30 10K
IC2-1
Q7
R26 33K
R24 4.7K
IC2-2
C12 0.0047
R25 10K
D10
C10 50V1
R21 47K
C9 100P
R18 100K
R3 1K
C2 50V1
D1
R8 4.7K
R6 22K
R5 22K
R4 100
R7 47K
Q2
Q1
R1 10K
R2 10K
C1 16V33
(RED)
(GRY)
(RED)


PA2
CN3
+Vcc
LS
E
E
-Vcc
PA1
CN3
+Vcc
LS
E
E
-Vcc

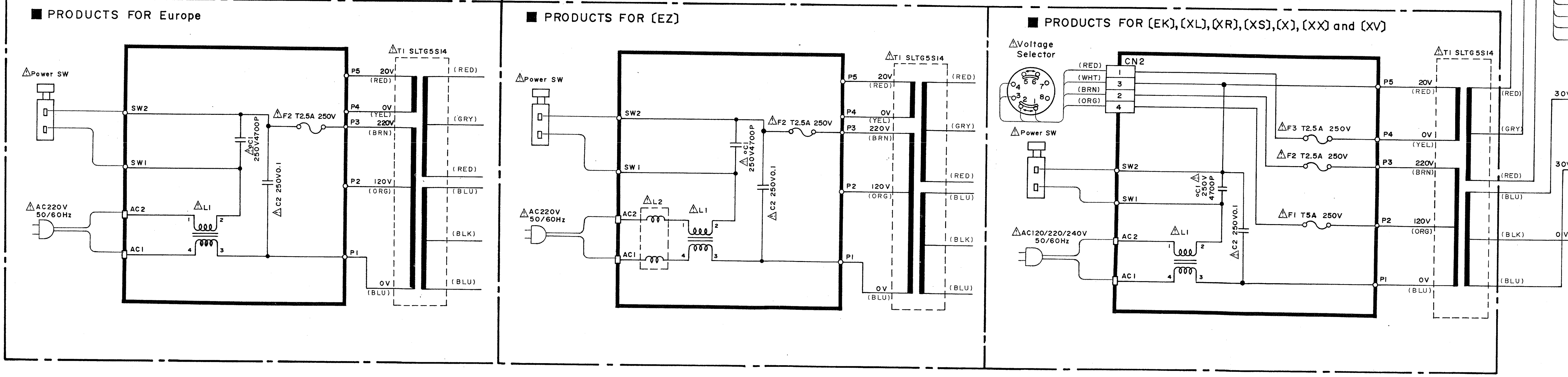
ACP AC POWER SUPPLY CIRCUIT


PRODUCTS FOR (MC) and (XT)
Power SW
SW2
SW1
AC 120V 60Hz
AC2
AC1
L1
C1 250V4700P
C2 250V0.1
F1 5A 125V
P2
P1
T1 SLTG5S15
120V (ORG)
0V (BLU)
(RED)
(GRY)
(RED)
(BLU)
(BLK)
(BLU)

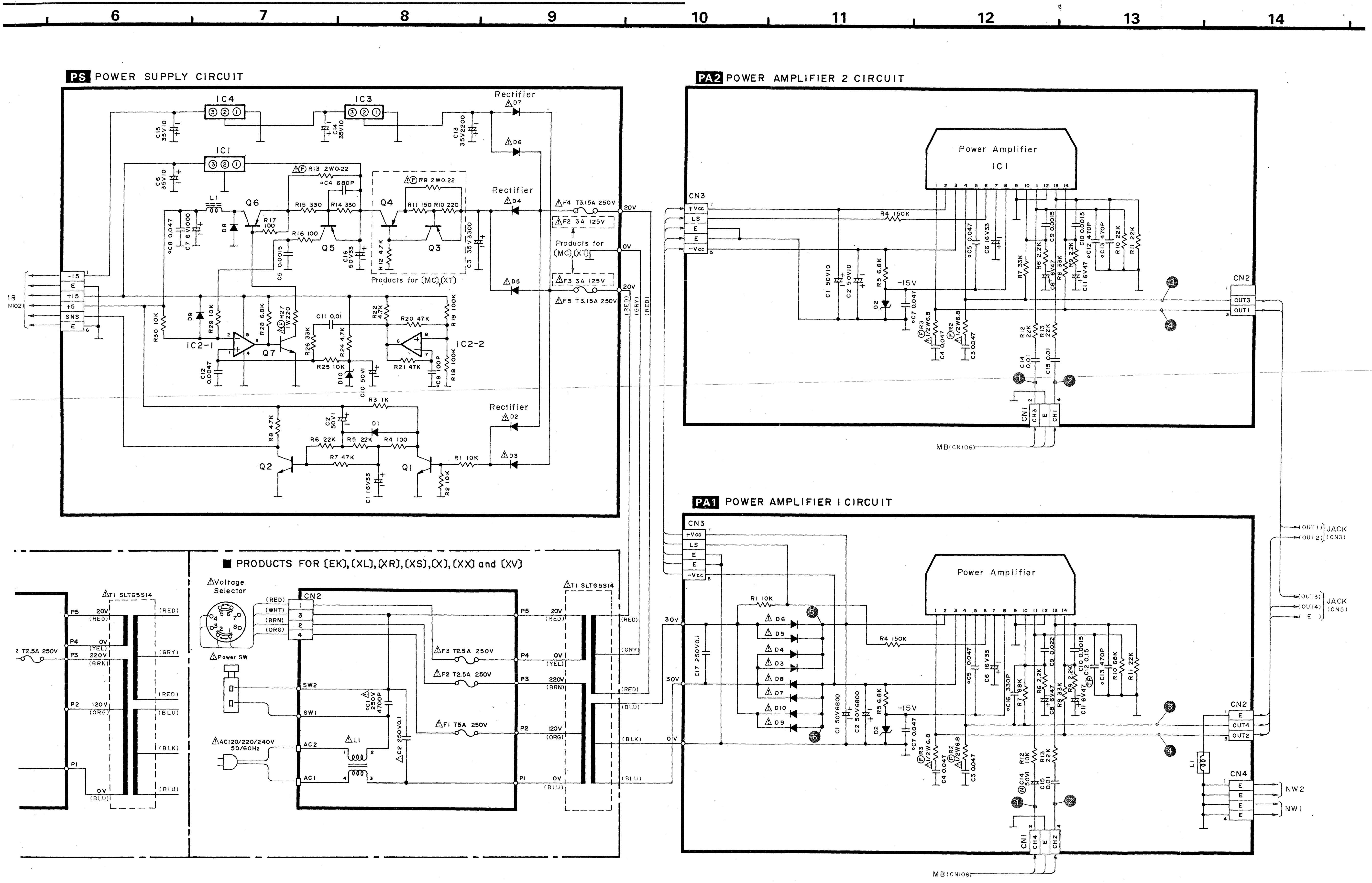
ACP

NOTES:

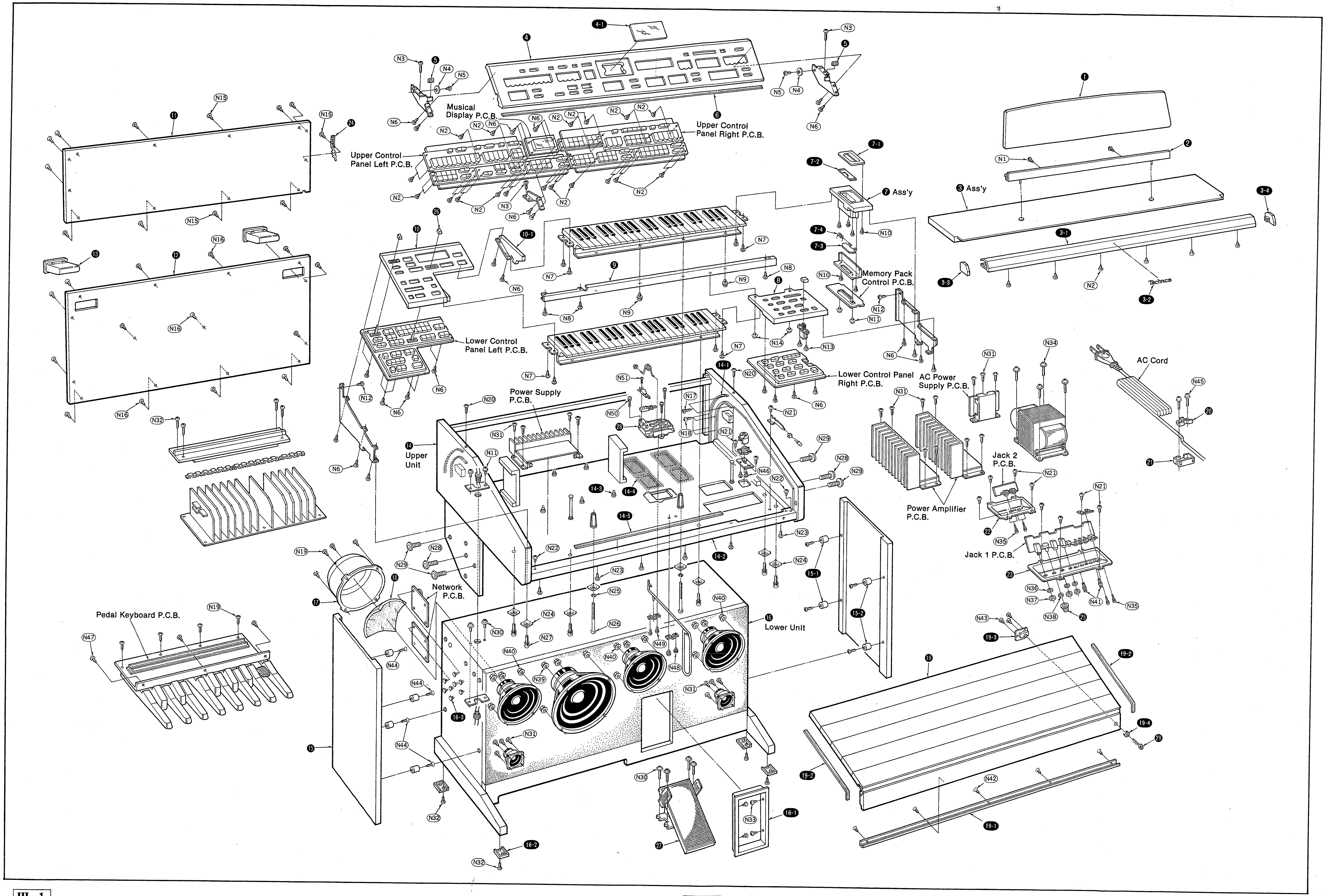
- FUSES
  F1 **MC** **XT**: XBA1F50NU14
  F1: XBA2C50TB0
  F2, 3: XBA2C25TB0


PRODUCTS FOR Europe
Power SW
SW2
SW1
AC220V 50/60Hz
AC2
AC1
L1
C1 250V4700P
C2 250V0.1
F2 T2.5A 250V
T1 SLTG5S14
P5 20V (RED)
P4 0V (YEL)
P3 220V (BRN)
P2 120V (ORG)
P1 0V (BLU)
PRODUCTS FOR (EZ)
Power SW
SW2
SW1
AC220V 50/60Hz
L2
L1
C1 250V4700P
C2 250V0.1
F2 T2.5A 250V
T1 SLTG5S14
PRODUCTS FOR (EK),(XL),(XR),(XS),(X),(XX) and (XV)
Voltage Selector
CN2
(RED)
(WHT)
(BRN)
(ORG)
Power SW
AC120/220/240V 50/60Hz
F3 T2.5A 250V
F2 T2.5A 250V
F1 T5A 250V
T1 SLTG5S14
30V
C17 250V0.1
(RED)
(GRY)
(BLU)
(BLK)
(BLU)

VER SUPPLY, POWER AMPLIFIER 1, 2 CIRCUIT DIAGRAM


6
7
8
9
10
11
12
13
14
PS POWER SUPPLY CIRCUIT
IC4
IC3
IC1
IC2-1
IC2-2
Rectifier
Q6
Q4
Q5
Q3
Q7
Q2
Q1
Products for (MC),(XT)
F4 T3.15A 250V
F2 3A 125V
F3 3A 125V
F5 T3.15A 250V
20V
0V
(RED)
(GRY)
-15
E
+15
+5
SNS
PA2 POWER AMPLIFIER 2 CIRCUIT
PA1 POWER AMPLIFIER I CIRCUIT
Power Amplifier
CN3
+Vcc
LS
-Vcc
CN2
OUT1
OUT2
OUT3
OUT4
CN1
CH1
CH2
CH3
CH4
CN4
NW2
NW1
MB(CN106)
JACK (CN3)
JACK (CN5)
R4 150K
-15V
PRODUCTS FOR (EK),(XL),(XR),(XS),(X),(XX) and (XV)
Voltage Selector
Power SW
AC120/220/240V 50/60Hz
T1 SLTG5S14
F3 T2.5A 250V
F2 T2.5A 250V
F1 T5A 250V
T2.5A 250V
SW1
SW2
AC1
AC2
P1
P2
P3
P4
P5
30V
C17 250V0.1

EXPLODED VIEWS OF CABINET


4-1
4
N3
5
N4
N5
N6
6
Musical Display P.C.B.
Upper Control Panel Right P.C.B.
Upper Control Panel Left P.C.B.
N2
N15
11
24
N16
12
13
10
26
10-1
N7
9
N8
N9
8
7-1
7-2
7 Ass'y
7-3
7-4
N10
Memory Pack Control P.C.B.
N11
N12
N13
N14
1
2
N1
3 Ass'y
3-4
3-1
3-3
3-2
Technics
Lower Control Panel Left P.C.B.
Lower Control Panel Right P.C.B.
AC Power Supply P.C.B.
AC Cord
N45
20
21
N34
N31
N32
14-1
N51
N50
N20
N17
N18
N21
Power Supply P.C.B.
14
Upper Unit
25
14-3
14-4
14-5
N29
N28
N46
N22
N23
14-2
N24
Jack 2 P.C.B.
Power Amplifier P.C.B.
22
N35
Jack 1 P.C.B.
23
N36
N37
N38
N41
N19
N28
N29
18
17
Network P.C.B.
N25
N26
N27
N30
N40
16
Lower Unit
15-1
15-2
N43
19-3
19
19-2
19-4
29
Pedal Keyboard P.C.B.
N47
N44
N39
N49
N48
N31
16-3
15
N30
N33
16-1
16-2
27
19-1
N42

REPL

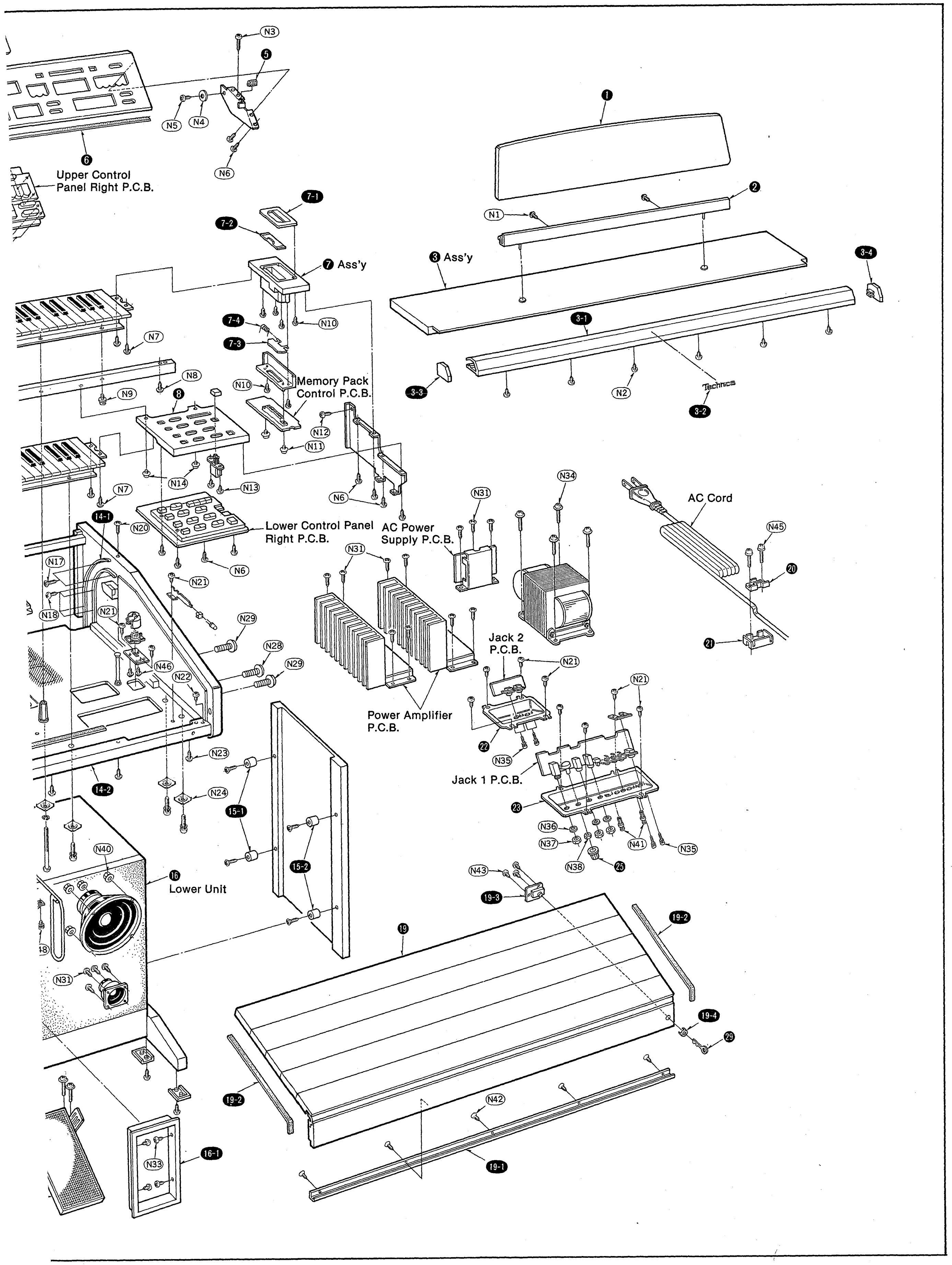
Notes:

1. ○ mark a
2. For part
order.

■ MECHAN

- SX-EX70-K

	Ref. No.
	1
	2
	3
	3-1
	3-2
	3-3
	3-4
○	4
○	4-1
	5
	6
	7
	7-1
	7-2
	7-3
	7-4
○	8
○	9
○	10
	10-1
○	11
○	12
	13
○	14
○	14-1
	14-2
	14-3
	14-4
	14-5
	15
	15-1
	15-2
○	16
	16-1
	16-2
	16-3
	17
	18
○	19
	19-1
	19-2
	19-3
	19-4
	20
	21
	22
○	23
	24
	25
	26


N3
6
N5
N4
6
Upper Control Panel Right P.C.B.
N6
1
7-1
7-2
7 Ass'y
3 Ass'y
N1
2
3-4
3-1
Technics
3-3
N2
3-2
7-4
7-3
N7
N10
N8
N9
8
Memory Pack Control P.C.B.
N12
N11
N7
N14
N13
N6
N34
N31
AC Cord
14-1
N20
Lower Control Panel Right P.C.B.
AC Power Supply P.C.B.
N31
N45
N17
N6
N21
20
N21
N18
N29
N28
Jack 2 P.C.B.
21
N21
N29
N46
N22
N21
Power Amplifier P.C.B.
22
N35
Jack 1 P.C.B.
N23
14-2
N24
15-1
23
N36
N37
N41
N35
N40
15-2
N43
N38
25
16
Lower Unit
19-3
19
19-2
18
N31
19-4
24
N42
19-2
N33
16-1
19-1

REPLACEMENT PARTS LIST......Mechanical Parts

Notes:

1. ○ mark are new parts.
2. For part No. with area mark, check the area when placing an order.
3. Cabinet Colour
   - SX-EX70-K .... Black face
   - SX-EX70 .... Woody face

■ MECHANICAL PARTS

• SX-EX70-K... Black face cabinet

Ref. No.	Part No.	Description	Per/Set
CABINET PARTS (SX-EX70-K)			
1	SKGG1B102A	Music Rack	1
2	SGXG2291A	Ornament	1
3	SKPG840A	Top Cover Ass'y	1
3-1	SGXG2100A	Ornament	1
3-2	SGBG100A	Technics Badge	1
3-3	SHRG8270A	Cap, Left Side	1
3-4	SHRG8280A	Cap, Right Side	1
○ 4	SGWG1740A	Control Panel	1
○ 4-1	SGKG2170A	Musical Display Panel	1
5	SHSG1640A	Felt	2
6	SHSG1890A	Felt	1
7	SYWG5111D	Upper Right End Cover Panel Ass'y	1
7-1	SKEG1090D	Receptacle	1
7-2	SKEG1100C	Slide Cover for Memory	1
7-3	SKEG1111C	Dust Cover Pack	1
7-4	SUSG300A	Spring	1
○ 8	SGWG3150L	Lower Right End Cover Panel	1
○ 9	SGXG2140B	Ornament Panel, for Lower Keyboard	1
○ 10	SYWG8130D	Left End Cover Panel	1
10-1	SGEG180C	Ornament	1
○ 11	SKZG7620A	Rear Board, Upper Side	1
○ 12	SYUG1111A	Rear Board, Lower Side	1
13	SKHG50A	Handle	2
○ 14	SKMG1460A	Cabinet (Upper Unit)	1
○ 14-1	SKEG7500A	Sliding Cover Guide	2
14-2	SGXG2120A	Front Panel	1
14-3	SHRG9200A	P.C.B. Holder	8
14-4	SGMG180A	Net	2
14-5	SHSG2870A	Felt	1
15	SKZGC700A	Side Panel	2
15-1	SHGG9040A	Catch Rubber (brown)	4
15-2	SHGG9040B	Catch Rubber (black)	4
○ 16	SKMG1470A	Cabinet (Lower Unit)	1
16-1	SGXG1100K	Ornament, for Expression	1
16-2	SHRG2080C	Foot	4
16-3	SHRG9200A	P.C.B. Holder	8
17	SHRG8130A	Speaker Cover	1
18	SHSG9140A	Sound Absorbing Material	1
○ 19	SKZG8340A	Sliding Cover	1
19-1	SGXG414B	Ornament	1
19-2	SHSG1600A	Felt	2
19-3	SBEG30A	Lock	1
19-4	SBEG40A	Staple	1
20	SHRG1120A	AC Cord Clamper (A)	1
21	SHRG1110A	AC Cord Clamper (B)	1
22	SMKG2800A	Jack 2 Panel	1
○ 23	SMKG2670E	Jack 1 Panel	1
24	SHRG1030A	Cord Band	1
25	SBNG4010A	Knob, Mic Volume	1
26	SBNG7031A	Knob, Tempo, Transpose	2
BENCH			
	SZ-CM94K		1

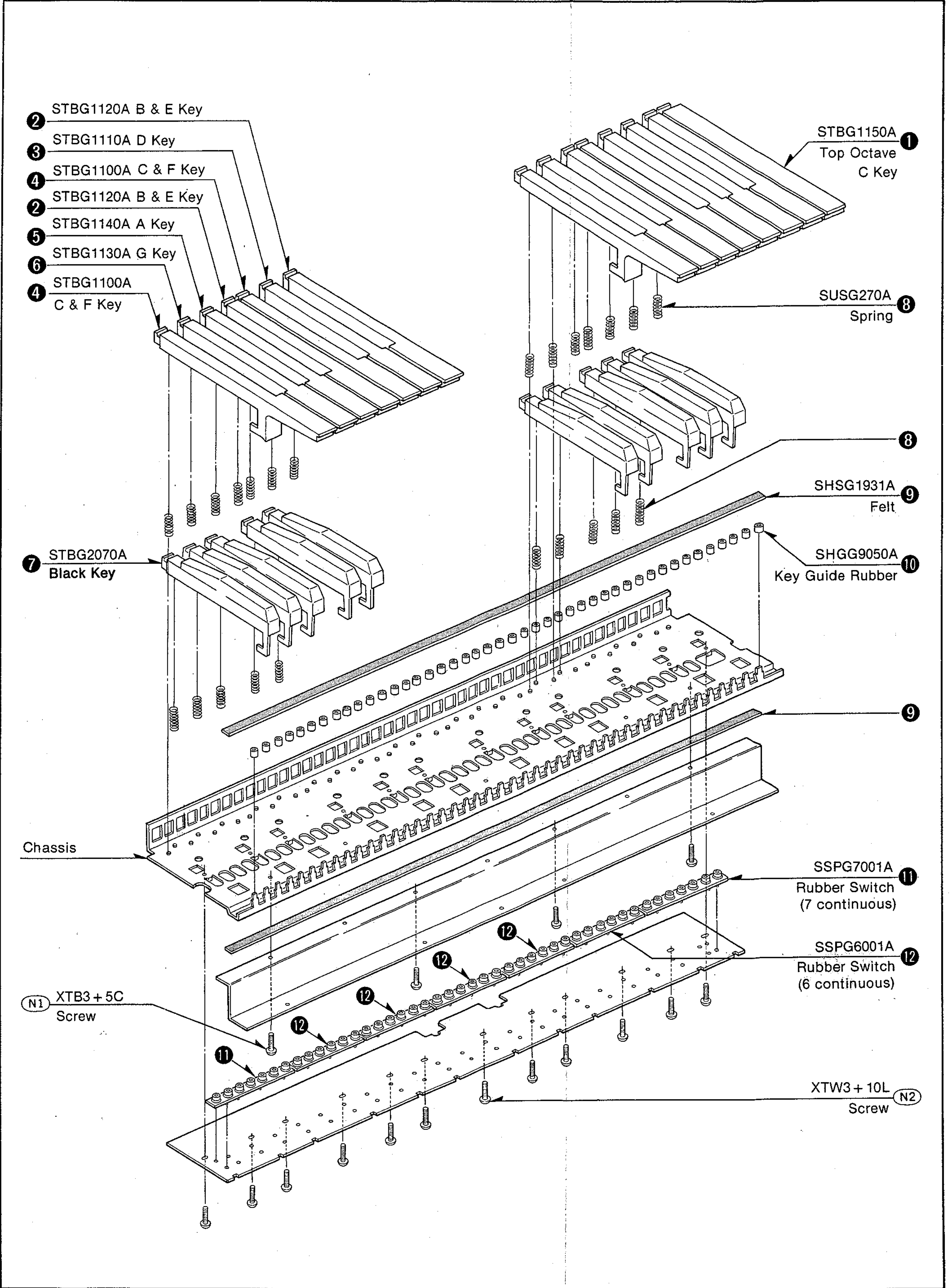
• SX-EX70... Woody face cabinet

Ref. No.	Part No.	Description	Per/Set
CABINET PARTS (SX-EX70)			
1	SKGG1B101B	Music Rack	1
2	SGXG2291B	Ornament	1
3	SKPG840B	Top Cover Ass'y	1
3-1	SGXG2100B	Ornament	1
3-2	SGBG100A	Technics Badge	1
3-3	SHRG8270B	Cap, Left Side	1
3-4	SHRG8280B	Cap, Right Side	1
○ 4	SGWG1740C	Control Panel	1
○ 4-1	SGKG2170A	Musical Display Panel	1
5	SHSG1640A	Felt	2
6	SHSG1890A	Felt	1
7	SYWG5111F	Upper Right End Cover Panel Ass'y	1
7-1	SKEG1090A	Receptacle	1
7-2	SKEG1100A	Slide Cover for Memory	1
7-3	SKEG1111A	Dust Cover Pack	1
7-4	SUSG300A	Spring	1
○ 8	SGWG3150M	Lower Right End Cover Panel	1
○ 9	SGXG2140B	Ornament Panel, for Lower Keyboard	1
○ 10	SYWG8130E	Left End Cover Panel	1
10-1	SGEG180A	Ornament	1
○ 11	SKZG7620A	Rear Board, Upper Side	1
○ 12	SYUG1111A	Rear Board, Lower Side	1
13	SKHG50A	Handle	2
○ 14	SKMG1460B	Cabinet (Upper Unit)	1
○ 14-1	SKEG7500A	Sliding Cover Guide	2
14-2	SGXG2120C	Front Panel	1
14-3	SHRG9200A	P.C.B. Holder	8
14-4	SGMG180A	Net	2
14-5	SHSG2870A	Felt	1
15	SKZGC700B	Side Panel	2
15-1	SHGG9040A	Catch Rubber (brown)	4
15-2	SHGG9040B	Catch Rubber (black)	4
○ 16	SKMG1470B	Cabinet (Lower Unit)	1
16-1	SGXG1100A	Ornament, for Expression	1
16-2	SHRG2080A	Foot	4
16-3	SHRG9200A	P.C.B. Holder	8
17	SHRG8130A	Speaker Cover	1
18	SHSG9140A	Sound Absorbing Material	1
○ 19	SKZG8340B	Sliding Cover	1
19-1	SGXG414A	Ornament	1
19-2	SHSG1600A	Felt	2
19-3	SBEG30A	Lock	1
19-4	SBEG40A	Staple	1
20	SHRG1120A	AC Cord Clamper (A)	1
21	SHRG1110A	AC Cord Clamper (B)	1
22	SMKG2800A	Jack 2 Panel	1
○ 23	SMKG2670E	Jack 1 Panel	1
24	SHRG1030A	Cord Band	1
25	SBNG4010A	Knob, Mic Volume	1
26	SBNG7031A	Knob, Tempo, Transpose	1
BENCH			
	SZ-CM94D		1

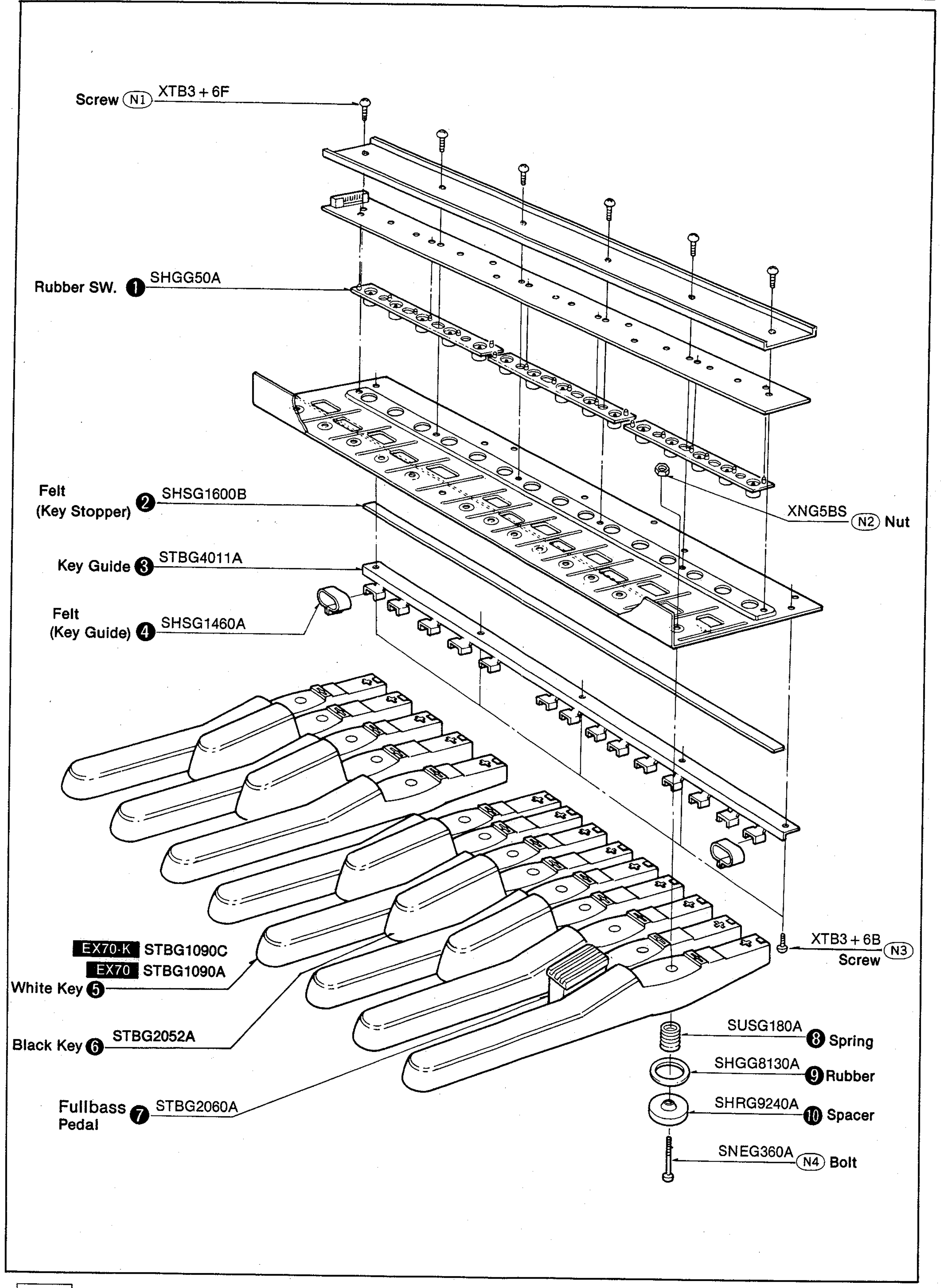
Ref. No.	Part No.	Description	Per/Set
ASSEMBLY PARTS			
27	SXVG6010B	Expression Unit	1
28	SXVG3031A	Knee Lever Unit	1
ACCESSORIES			
29	SBEG60A	Key	1
	SBEG20A	Hexagonal Rod Wrench	1
SCREWS & WASHERS			
N1 EX70-K	XTB3+5FFZ	Screw, SX-EX70-K only	2
N1 EX70	XTB3+5FFVC	Screw, SX-EX70 only	2
N2	XTB3+12A	Screw	39
N3	XTT4+12AFR	Screw	3
N4	XWG3×13	Washer	2
N5	XTB35+14A	Screw	2
N6	XTB4+12A	Screw	32
N7	XTT4+14AFVC	Screw	8
N8	XTT4+10A	Screw	3
N9	XYN5+C10S	Screw, with Washer	2
N10	XTV3+10G	Screw	6
N11	XYN3+F14S	Screw, with Washer	4
N12	XTB35+20AFZ	Screw	2
N13	SNEG740A	Screw	2
N14	XYN4+F10S	Screw, with Washer	2
N15	XTT4+16AFVC	Screw	12
N16	XTT4+25AFVC	Screw	14
N17	XTS3+20A	Screw	4
N18	XTB35+20A	Screw	10
N19	XTT4+14A	Screw	8
N20	XTT4+30A	Screw	2
N21	XTB35+10A	Screw	11
N22	XTB3+8BFVC	Screw	2
N23	XTT35+10AFVC	Screw	6
N24	SNEG150A	Washer	8
N25	XWA5B	Washer	2
N26	XSN5+85S	Screw	2
N27	XYN5+C25S	Screw, with Washer	6
N28	SNEG750C	Bolt (black)	2
N29	SNEG750B	Bolt (red)	4
N30	XYN4+F20FZS	Screw, with Washer	6
N31	XTT4+12A	Screw	23
N32	XTB35+25A	Screw	8
N33 EX70-K	SNEG1320B	Screw, SX-EX70-K only	4
N33 EX70	XTB3+14AFVC	Screw, SX-EX70 only	4
N34	XYN4+F14S	Screw, with Washer	4
N35	XYN3+K10FZS	Screw, with Washer	6
N36	SNEG770A	Washer	3
N37	XNS12FZ	Nut	3
N38	SNE4021-1	Nut	1
N39	SNE499-1	Nut	4
N40	SNE491	Nut	12
N41	SHR401-1	Nylon Latch	2
N42	XTS3+10AFVC	Screw	5
N43	XTB3+10A	Screw	3
N44	XTB3+14A	Screw	8
N45	XYN3+F20S	Screw, with Washer	2
N46	XYN3+C8FZS	Screw	2
N47	XTB4+10A	Screw	3
N48	XYN3+F16S	Screw	2
N49	XTV3+10B	Screw	2
N50	XYN3+C12S	Screw	3
N51	XTN2+10FFX	Screw	1

Ref. No.	Part No.	Description	Per/Set
INSTRUCTION BOOK			
○	SQFGA370	Instruction Book	1
○	SQFGA350	Instruction Book, [EN][EL] only	1
○	SQFGA360	Instruction Book, [MC][EK][EP][XT][XV][X] [XX][XL][XR][XS] only	1
MANUAL KEYBOARD			
1	STBG1150A	White Key (Top Octave C Key)	1
2	STBG1120A	White Key (B & E Key)	7
3	STBG1110A	White Key (D Key)	3
4	STBG1100A	White Key (C & F Key)	7
5	STBG1140A	White Key (A Key)	4
6	STBG1130A	White Key (G Key)	4
7	STBG2070A	Black Key	18
8	SUSG270A	Spring	44
9	SHSG1931A	Felt	2
10	SHGG9050A	Key Guide Rubber	44
11	SSPG7001A	Rubber Switch (7 continuous)	2
12	SSPG6001A	Rubber Switch (6 continuous)	5
N1	XTB3+5C	Screw	5
N2	XTW3+10L	Screw	12
PEDAL KEYBOARD			
1	SHGG50A	Rubber Switch (5 continuous)	3
2	SHSG1600B	Felt (Key Stopper)	1
3	STBG4011A	Key Guide	1
4	SHSG1460A	Felt (Key Guide)	14
5 EX70-K	STBG1090C	White Key, SX-EX70-K only	8
5 EX70	STBG1090A	White Key, SX-EX70 only	8
6	STBG2052A	Black Key	5
7	STBG2060A	Full Bass Pedal	1
8	SUSG180A	Spring	14
9	SHGG8130A	Rubber	14
10	SHRG9240A	Spacer	14
N1	XTB3+6F	Screw	6
N2	XNG5BS	Nut	14
N3	XTB3+6B	Screw	5
N4	SNEG360A	Bolt	14

EXPLODED VIEWS OF MANUAL KEYBOARD


❷ STBG1120A B & E Key
❸ STBG1110A D Key
❹ STBG1100A C & F Key
❷ STBG1120A B & E Key
❺ STBG1140A A Key
❻ STBG1130A G Key
❹ STBG1100A C & F Key
STBG1150A Top Octave C Key ❶
SUSG270A Spring ❽
❽
SHSG1931A Felt ❾
❼ STBG2070A Black Key
SHGG9050A Key Guide Rubber ❿
❾
Chassis
SSPG7001A Rubber Switch (7 continuous) ⓫
SSPG6001A Rubber Switch (6 continuous) ⓬
⓬
⓬
⓬
⓬
⓫
N1 XTB3+5C Screw
XTW3+10L Screw N2

EXPLODED VIEWS OF PEDAL KEYBOARD



Ref. No.	Part No.	Description		Per/Set
		BUTTON (SX-EX70-K)		
	SBCG20I47	Power Switch		1
	SBCG150G02	upper tab voices	upper orchestral conductor	1
	SBCG140G79	percussive presets		1
	SBCG140G81	orchestral presets		1
	SBCG140G77	solo presets		1
	SBCG140G80	organ presets		1
	SBCG140G83	string ensemble		1
○	SBCG140G84	vocal ensemble		1
	SBCG150H02	lower tab voices	lower orchestral conductor	1
	SBCG140H26	percussive presets		1
	SBCG140H28	orchestral presets		1
	SBCG140H25	solo presets		1
	SBCG140H27	organ presets		1
	SBCG140H30	string ensemble		1
	SBCG140H31	vocal ensemble		1
	SBCG130N01	flute 16′	upper tab voices	1
	SBCG130N02	flute 8′		1
	SBCG130N03	flute $5^{1}/_{3}$′		1
	SBCG130N04	flute 4′		1
	SBCG130N05	flute $2^{2}/_{3}$′		1
	SBCG130N06	flute 2′		1
	SBCG130N07	flute $1^{1}/_{3}$′		1
	SBCG130N08	flute 1′		1
	SBCG130H01	String 8′		1
	SBCG130H02	String 4′		1
	SBCG170G00	volume		2
	SBCG160K00	upper harmonic coupler $2^{2}/_{3}$′		1
	SBCG160H00	slow attack		1
	SBCG130N09	$5^{1}/_{3}$′	upper percussive tone	1
	SBCG130N10	4′		1
	SBCG130N11	$2^{2}/_{3}$′		1
	SBCG130N12	2′		1
	SBCG130H03	click		1
	SBCG160H00	long		1
	SBCG170G00	volume		2
	SBCG161H00	mode selector		2
	SBCG140N07	I	upper organ presets	1
	SBCG140N08	II		1
○	SBCG140N17	III		1
○	SBCG140N18	IV		1
	SBCG130N02	flute 8′	lower tab voices	1
	SBCG130N04	flute 4′		1
	SBCG130N06	flute 2′		1
	SBCG130H01	string 8′		1
	SBCG130H02	string 4′		1
	SBCG170G00	volume		2
	SBCG160K00	lower harmonic coupler 2′		1
○	SBCG161N01	cancel	effect conductor	2
	SBCG140N19	chorus		2
	SBCG140N20	celeste		2
○	SBCG161G01	cancel		3
	SBCG140G47	chorus		3
	SBCG140G48	celeste		3
	SBCG130N13	U tab voices	multi-tremolo/ vibrato	1
	SBCG130N14	L tab voices		1
	SBCG130H04	slow/fast		1
	SBCG160H00	vibrato		1
	SBCG140G86	set	Voice Setting Computer	1
	SBCG141H01	cancel		1
	SBCG140N01	1		1
	SBCG140N02	2		1
	SBCG140N03	3		1
	SBCG140N04	4		1
	SBCG140N05	5		1
	SBCG140N06	6		1
	SBCG140G31	electric piano	U & L percussive presets	1
	SBCG140G32	piano		1
	SBCG140G33	clavi		1
	SBCG140G34	harpsichord		1
	SBCG140G35	banjo		1
	SBCG140G36	vibraphone		1
	SBCG140G37	jazz guitar		1
	SBCG140G38	guitar		1
○	SBCG170H00	harmonic control		2
	SBCG170G00	volume		2
	SBCG140G39	trumpet	U & L orchestral presets	1
	SBCG140G40	trombone		1
	SBCG140G41	french horn		1
	SBCG140G42	saxophone		1
	SBCG140G43	accordion		1
	SBCG140G44	clarinet		1
	SBCG140G45	synthe brass		1
	SBCG140G46	wah brass		1
○	SBCG170H00	harmonic control		2
	SBCG170G00	volume		2
	SBCG140G49	harmonica	U & L solo presets	1
	SBCG140G30	violin		1
	SBCG140G39	trumpet		1
	SBCG140G40	trombone		1
	SBCG140G44	clarinet		1
	SBCG140G42	saxophone		1
○	SBCG140G50	oboe		1
	SBCG140G51	flute		1
○	SBCG140G52	whistle		1
	SBCG140G53	pan flute		1
	SBCG140G89	synthe I		1
	SBCG140G90	synthe II		1
○	SBCG170H00	harmonic control		2
	SBCG170G00	volume		2
	SBCG140N13	bass 8′	bass	1
	SBCG140N14	bass 16′		1
	SBCG140G88	bowed bass		1
	SBCG140G87	acoustic bass		1
	SBCG140G26	chopper bass		
	SBCG140G24	electric bass		1
	SBCG140G27	tuba		1
	SBCG140G28	synthe bass		1
	SBCG170H00	harmonic control		2
	SBCG170G00	volume		2
	SBCG170G00	volume, U & L vocal ensemble		2
	SBCG140G29	cello	string ensemble	2
	SBCG140G30	violin		2
	SBCG170G00	volume		4

Ref. No.	Part No.	Description	Per/Set
	SBCG140N09	on, rhythm sequencer	1
	SBCG140N09	on, drum variation	1
	SBCG140H20	on } drum percussion	1
	SBCG140G93	mellow	1
	SBCG170G00	volume	2
	SBCG140H21	I/II } rhythmic orchestra	1
	SBCG140G68	rhythmic	1
	SBCG140G69	melodic	1
	SBCG170G00	volume	2
	SBCG140N07	I } composer	1
	SBCG140N08	II	1
	SBCG140G56	march } drum percussion selector	1
	SBCG140G57	swing I	1
	SBCG140G58	8 beat	1
	SBCG140G59	16 beat	1
	SBCG140G60	ballad	1
	SBCG140G61	disco I	1
	SBCG140G62	rhumba	1
	SBCG140G63	bossa nova I	1
	SBCG140G64	mambo	1
	SBCG140G65	samba	1
	SBCG140G66	waltz	1
	SBCG140G67	tango	1
	SBCG140H13	I } tempo set	1
	SBCG140H14	II	1
	SBCG140G92	fine	1
	SBCG140H13	I } arrange percussion	1
	SBCG140H14	II	1
	SBCG140N07	I } fill in	1
	SBCG140N08	II	1
	SBCG140H00	bass solo	1
	SBCG140G70	close/open } techni chord	1
	SBCG140H20	on	1
	SBCG140G71	vari } intro & ending	1
	SBCG140J05	on	1
	SBCG141G01	cancel } Program Chord Computer	1
	SBCG140G72	PCC	1
	SBCG140H22	fingered	1
	SBCG140H23	memory	1
	SBCG140K07	on, one touch play	1
	SBCG140G73	record	1
	SBCG140G74	glide/rhythm, foot switch	1
	SBCG140G75	synchro & break } drum percussion control	1
	SBCG150N00	start/stop	1
	SBCG160H00	free set } tuning	1
	SBCG170G00	control volume	2
	SBCG160H00	on } sustain control	3
	SBCG170G00	control volume	8
	SBCG160H00	bass, lower } Play Sequencer	2
	SBCG160N00	upper, solo	2
	SBCG170G00	main volume, digital reverb	4
	SBCG140J00	Fullband Setting Computer	1
	SHRG9390A	lever } tang switch button	23
	SHRG9400A	case	23
	SHRG9410A	lever } push switch button	182
	SHRG9430A	lever (2 continuous)	3
	SHRG9420A	case	188

BUTTON (SX-EX70)

Ref. No.	Part No.	Description			Per/Set
	SBCG20147	Power Switch			1
	SBCG150G02	upper tab voices	upper orchestral conductor		1
	SBCG140G79	percussive presets			1
	SBCG140G81	orchestral presets			1
	SBCG140G77	solo presets			1
	SBCG140G80	organ presets			1
	SBCG140G83	string ensemble			1
	SBCG140G84	vocal ensemble			1
	SBCG150H02	lower tab voices	lower orchestral conductor		1
	SBCG140H26	percussive presets			1
	SBCG140H28	orchestral presets			1
	SBCG140H25	solo presets			1
	SBCG140H27	organ presets			1
	SBCG140H30	string ensemble			1
	SBCG140H31	vocal ensemble			1
	SBCG130A01	flute 16′	upper tab voices		1
	SBCG130A02	flute 8′			1
	SBCG130A03	flute $5^{1}/_{3}$′			1
	SBCG130A04	flute 4′			1
	SBCG130A05	flute $2^{2}/_{3}$′			1
	SBCG130A06	flute 2′			1
	SBCG130A07	flute $1^{1}/_{3}$′			1
	SBCG130A08	flute 1′			1
	SBCG130B01	String 8′			1
	SBCG130B02	String 4′			1
	SBCG170G00	volume			2
	SBCG160K00	upper harmonic coupler $2^{2}/_{3}$′			1
	SBCG160C00	slow attack			1
	SBCG130A18	$5^{1}/_{3}$′	upper percussive tone		1
	SBCG130A09	4′			1
	SBCG130A10	$2^{2}/_{3}$′			1
	SBCG130A11	2′			1
	SBCG130C01	click			1
	SBCG160C00	long			1
	SBCG170G00	volume			2
	SBCG161C00	mode selector			2
	SBCG140A01	I	upper organ presets		1
	SBCG140A02	II			1
	SBCG140A17	III			1
	SBCG140A18	IV			1
	SBCG130A02	flute 8′	lower tab voices		1
	SBCG130A04	flute 4′			1
	SBCG130A06	flute 2′			1
	SBCG130B01	string 8′			1
	SBCG130B02	string 4′			1
	SBCG170G00	volume			2
	SBCG160K00	lower harmonic coupler 2′			1
	SBCG161A01	cancel	tab voices	effect conductor	2
	SBCG140A21	chorus			2
	SBCG140A22	celeste			2
	SBCG161B01	cancel	percussive		1
	SBCG140B24	chorus			1
	SBCG140B12	celeste			1
	SBCG161E01	cancel	orchestral		1
	SBCG140E12	chorus			1
	SBCG140E13	celeste			1
	SBCG161F01	cancel	solo synthe		1
	SBCG140F13	chorus			1
	SBCG140F22	celeste			1
	SBCG130A12	U tab voices	multi-tremolo/ vibrato		1
	SBCG130A13	L tab voices			1
	SBCG130D02	slow/fast			1
	SBCG160E00	vibrato			1
	SBCG140A36	set	Voice Setting Computer		1
	SBCG141D01	cancel			1
	SBCG140L13	1			1
	SBCG140L14	2			1
	SBCG140L15	3			1
	SBCG140L16	4			1
○	SBCG140L17	5			1
○	SBCG140L18	6			1
	SBCG140B02	electric piano	U & L percussive presets		1
	SBCG140B03	piano			1
	SBCG140B21	clavi			1
	SBCG140B04	harpsichord			1
	SBCG140B09	banjo			1
	SBCG140B05	vibraphone			1
	SBCG140B07	jazz guitar			1
	SBCG140B08	guitar			1
	SBCG170C00	harmonic control			2
	SBCG170G00	volume			2
	SBCG140E14	trumpet	U & L orchestral presets		1
	SBCG140E01	trombone			1
	SBCG140E15	french horn			1
	SBCG140E02	saxophone			1
	SBCG140E03	accordion			1
	SBCG140E04	clarinet			1
	SBCG140E06	synthe brass			1
	SBCG140E05	wah brass			1
○	SBCG170C00	harmonic control			2
	SBCG170G00	volume			2
	SBCG140F14	harmonica	U & L solo presets		1
	SBCG140F15	violin			1
	SBCG140F03	trumpet			1
	SBCG140F01	trombone			1
	SBCG140F04	clarinet			1
	SBCG140F02	saxophone			1
	SBCG140F16	oboe			1
	SBCG140F05	flute			1
	SBCG140F17	whistle			1
	SBCG140F06	pan flute			1
○	SBCG140F25	synthe I			1
○	SBCG140F26	synthe II			1
	SBCG170C00	harmonic control			2
	SBCG170G00	volume			2
	SBCG140A04	bass 8′	bass		1
	SBCG140A03	bass 16′			1
	SBCG140B28	bowed bass			1
	SBCG140B01	acoustic bass			1
	SBCG140B16	chopper bass			
	SBCG140B10	electric bass			1
	SBCG140F09	tuba			1
	SBCG140F08	synthe bass			1
	SBCG170C00	harmonic control			2
	SBCG170G00	volume			2
	SBCG170G00	volume, U & L vocal ensemble			2
	SBCG140B19	cello	string ensemble		2
	SBCG140B20	violin			2
	SBCG170G00	volume			4

Ref. No.	Part No.	Description	Per/Set
	SBCG140E11	on, rhythm sequencer	1
	SBCG140J05	on, drum variation	1
	SBCG140K01	on } drum percussion	1
	SBCG140J01	mellow	1
	SBCG170G00	volume	2
	SBCG140B15	I/II } rhythmic orchestra	1
	SBCG140E09	rhythmic	1
	SBCG140E08	melodic	1
	SBCG170G00	volume	2
	SBCG140E16	I } composer	1
	SBCG140E17	II	1
	SBCG140A23	march } drum percussion selector	1
	SBCG140C10	swing I	1
	SBCG140C11	8 beat	1
	SBCG140A24	16 beat	1
	SBCG140A25	ballad	1
	SBCG140C12	disco I	1
	SBCG140C13	rhumba	1
	SBCG140A26	bossa nova I	1
	SBCG140A27	mambo	1
	SBCG140C14	samba	1
	SBCG140C15	waltz	1
	SBCG140A28	tango	1
	SBCG140L01	I } tempo set	1
	SBCG140L02	II	1
	SBCG140A29	fine	1
	SBCG140B13	I } arrange percussion	1
	SBCG140B14	II	1
	SBCG140K02	I } fill in	1
	SBCG140K03	II	1
	SBCG140C00	bass solo	1
	SBCG140L08	close/open } techni chord	1
	SBCG140D02	on	1
	SBCG140K08	vari } intro & ending	1
	SBCG140J05	on	1
	SBCG141K04	cancel } Program Chord Computer	1
	SBCG140J02	PCC	1
	SBCG140J03	fingered	1
	SBCG140J01	memory	1
	SBCG140B27	on, one touch play	1
	SBCG140F10	record	1
	SBCG140A14	glide/rhythm, foot switch	1
	SBCG140A37	synchro & break } drum percussion control	1
	SBCG150G00	start/stop	1
	SBCG160C00	free set } tuning	1
	SBCG170G00	control volume	2
	SBCG160C00	on } sustain control	3
	SBCG170G00	control volume	8

Ref. No.	Part No.	Description	Per/Set
	SBCG160B00	bass, lower } Play Sequencer	2
	SBCG160E00	upper, solo	2
	SBCG170G00	main volume, digital reverb	4
	SBCG140L00	Fullband Setting Computer	1
	SHRG9390A	lever } tang switch button	23
	SHRG9400A	case	23
	SHRG9410A	lever } push switch button	182
	SHRG9430A	lever (2 continuous)	3
	SHRG9420A	case	188

REPLACEMENT PARTS LIST......Electrical Parts

Notes:

1. Printed circuit boards are supplied only during the period of production.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.
6. Cabinet Colour
   EX70-K : Black face
   EX70 : Woody face

■ Numbering System of Resistor

- All resistors are 1/4 WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagram.
- Resistors with Ⓕ symbolic mark are Flame-Proof resistors.
- Resistors with 🄵 symbolic mark are fuse type Flame-Proof resistors.

Resistor Type	Wattage	Tolerance
ERD : Carbon	S2 : 1/4W	F : ±1%
ERD—F : Carbon, Flame-Proof	2 : 1/4W	G : ±2%
	25 : 1/4W	J : ±5%
ERO : Metal Film	50 : 1/2W	
ERG : Metal Oxide	1 : 1W	
ERX : Metal Film	2 : 2W	

Example:

Carbon:

ERD	S2	T	J	101
Type	Wattage	Shape	Tolerance	Value

Carbon Flame-Proof:

ERD	2	F	C	G	101
Type	Wattage	Flame-Proof	Fuse Type	Tolerance	Value

Metal Film:

ERO	S2	T	K	F	2201
Type	Wattage	Shape	Peculiarity use	Tolerance	Value

Metal Oxide (Metal Film):

ERG(X)	1	AN	J	121
Type	Wattage	Shape	Tolerance	Value

■ Numbering System of Capacitor

- All capacitors are microfarads unless otherwise specified in the schematic diagram.

Capacitor Type	Symbol Mark	Voltage		Tolerance
		ECEA Type	Others	
ECEA : Electrolytic		0J : 6.3V	1H : 50V	ECEA Type : ±20%
ECEA—N : Non-Polar Electrolytic	Ⓝ	1C : 16V	1E : 25V	J : ±5%
ECEA—Y : Non-Polar Electrolytic	Ⓨ	1E : 25V	1V : 35V	K : ±10%
ECEA—M : Electrolytic, MSR Series	(MS)	1H : 50V		M : ±20%
ECEA—Z : Electrolytic, Z Series	Ⓩ	50Y : 50V		Z : $^{+80}_{-20}\%$
ECEA—K : Electrolytic, miniature type	Ⓚ	50M : 50V		F : ±1pF
ECQV : TF Capacitor	(TF)	50Z : 50V		
ECQB : Polyester	(TF)			
ECQM(G) : Polyester				
ECC : Ceramic	○			
ECK : Ceramic	○			
ECS : Tantalume Solid Electrolytic	Ⓣ			

Example:

Electrolytic:

ECEA	0J	U	330
Type	Voltage	Peculiarity use	Value

MSR Series:

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

TF, Polyester:

ECQV	1H	102	J
Type	Voltage	Value	Tolerance

Ceramic:

ECC(K)	R	1H	220	J
Type	Shape	Voltage	Value	Tolerance

Tantalume Solid:

ECS	F	1V	Z	105
Type	Shape	Voltage	Peculiarity use	Value

■ PRINTED CIRCUIT BOARD

Ref. No.	Part No.	Description	Per/Set
○	SXPG131431	System Assigner (SAS)	1
	SXPG131521	Tone Generator Module (TGM)	1
	SXPG12311	L. Sustain Control (LSC)	(1)
	SXPG123141	U. Sustain Control (USC)	(1)
	SXPG117461A	Organ (ORG)	1
○	SXPG132921	Percussive Tone (PCT)	1
○	SXPG120951A	Orchestral Presets (OPS)	1
	SXPG130331	Digital Percussive Presets (DPPS)	1
○	SXPG133611	Digital Solo/Bass/ Accompaniment (DSBA)	1
	SXPG133011	Drum Percussion (DP)	1
○	SXPG120951B	Selector (SEL)	1
○	SXPG123321A	Tremolo & Phaser Modulation (LPM)	1
○	SXPG123321B	Celeste & String Ensemble (CSM)	1
○	SXPG133121	Mixing (MIX)	1
○	SXPG113521	Reverb (REV)	1
○	SXPG133221	Mother Board (MB)	1
○ EZ	SXPG133261	Mother Board (MB), [EZ] only	1
○ EX70-K	SXPG133911	Upper Control Panel Right (CPR)	1
○	SXPG121951	Upper Control Panel Left (CPL)	1
	SXPG132811A	Lower Control Panel Left (CPSL)	1
	SXPG132811B	Lower Control Panel Right (CPSR)	1
○ EX70	SXPG133921	Upper Control Panel Right (CPR)	1
○	SXPG121961	Upper Control Panel Left (CPL)	1
	SXPG132821A	Lower Control Panel Left (CPSL)	1
	SXPG132821B	Lower Control Panel Right (CPSR)	1
○	SXEG33A	Musical Display (MD)	1
	SXPG12281	Memory Pack Control (MPC)	1
	SXPG126721	Lower Keyboard (LKB)	1
	SXPG126711	Upper Keyboard (UKB)	1
	SXPG11702	Pedal Keyboard (PKB)	1
○	SXPG132131	Jack 1 (JACK 1)	1
○ EZ	SXPG132151	Jack 1 (JACK 1), [EZ] only	1

Ref. No.		Part No.	Description	Per/Set
		SXPG131911B	Jack 2 (JACK 2)	1
○		SXPG118081	Network (NW)	2
		SXPG103211	Expression (EXP)	1
○	EZ	SXPG131961C	Filter 1 (LF 1) } [EZ] only	1
	EZ	SXPG131991C	Filter 2 (LF 2) }	1
○		SXPG133421	Power Amplifier 1 (PA 1)	1
○		SXPG133431	Power Amplifier 2 (PA 2)	1
○		SXPG1319131A	Power Supply (PS)	1
○	MC XT	SXPG1319141A	Power Supply (PS), [MC][XT] only	1
○		SXPG134011	AC Power Supply (ACP)	1
○	MC XT	SXPG134031	AC Power Supply (ACP), [MC][XT] only	1
○	EZ	SXPG134051	AC Power Supply (ACP), [EZ] only	1
○	EK XS XL XR X XX XV	SXPG134021	AC Power Supply (ACP), [EK][XS][XL][XR][X][XX] [XV] only	1

■ SYSTEM ASSIGNER CIRCUIT (SAS)

Ref. No.		Part No.	Description	Per/Set
			INTEGRATED CIRCUITS	
	IC1	SVIG7810H	1 chip 8 bit Microcomputer	1
	IC2	SVIGM6050211	Gate Array	1
	IC3	SVIG65002017	Gate Array	1
○	IC4	SVIG02EX70-A	256K bit ROM	1
○	IC5	SVIG02EX70-B	256K bit ROM	1
	IC6	SVIGD446415L	64K bit CMOS RAM	1
○	IC7	SVIG01EX70-C	128K bit ROM	1
	IC8	SVIGM74LS03	Quadruple 2-Input NAND Gate	1
	IC9	SVIGM53216	Hex Inverter	1
	IC10	SVIGTC74HC04	Hex Inverter	1
	IC11~16	SVIGM5218L	Operational Amplifier	6
			TRANSISTORS	
	Q1, 2, 6	2SA933STRS		3
	Q4	2SC1047C		1
	Q5	2SC2320LFG		1
			DIODES	
	D1, 2	MA165TA5		2
	D3	MA4036H	Zener	1
			COMPONENT COMBINATIONS	
	Z1~4	EXBP88472MM	4.7KΩ×8	4
			QUARTZ & CERAMIC OSCILLATORS	
	X1	SVQG43U1500A	15MHz, Quartz Oscillator	1
	X2	EFOFC4004A3	4MHz, Ceramic Oscillator	1
			SEMI-FIXED RESISTORS	
	VR1, 2	EVSG0T1B103A	10KΩ B	2
			COILS	
	L1	SLQG80W13A	80µH	1
	L2	SLQG16W33A	16µH	1
			RESISTORS	
		ERDS2TJ330	33Ω	2
		ERDS2TJ101	100Ω	2
		ERDS2TJ331	330Ω	1
		ERDS2TJ471	470Ω	1
		ERDS2TJ681	680Ω	1
		ERDS2TJ102	1KΩ	4
		ERDS2TJ222	2.2KΩ	4
		ERDS2TJ272	2.7KΩ	2
		ERDS2TJ332	3.3KΩ	2
		ERDS2TJ472	4.7KΩ	11
		ERDS2TJ103	10KΩ	5
		ERDS2TJ123	12KΩ	2
		ERDS2TJ223	22KΩ	3
		ERDS2TJ333	33KΩ	1
		ERDS2TJ473	47KΩ	1
		ERDS2TJ823	82KΩ	1
		ERDS2TJ104	100KΩ	6
		ERDS2TJ124	120KΩ	9
		ERDS2TJ184	180KΩ	8
		ERDS2TJ224	220KΩ	2
		ERDS2TJ474	470KΩ	9
		ERDS2TJ105	1MΩ	1
			CAPACITORS	
		ECEA1CU101	100µF, 16V	1
		ECEA50M1R	(MS) 1µF, 50V	1
		ECQG1H102KZ	0.001µF	1
		ECQG1H682KZ	0.0068µF	2
		ECQM1H103KV	0.01µF	7
		ECQM1H333KV	0.033µF	1
		ECQM1H473KV	0.047µF	1
		ECQM1H683KV	0.068µF	8
		ECQV1H104JZ	(TF) 0.1µF	2
		ECQV1H224JZ	(TF) 0.22µF	2
		ECQV1H474JZ	(TF) 0.47µF	1
		ECCR1H220J	○ 22PF	2
		ECCR1H221J	○ 220PF	1
		ECKR1E473ZV	○ 0.047µF	10
		EECW5R5F104	0.1F, 5.5V, Liquid Electrolyte Double Layer	1

■ TONE GENERATOR MODULE CIRCUIT (TGM)

Ref. No.		Part No.	Description	Per/Set
			INTEGRATED CIRCUITS	
	IC1	SVIGUPD6303G	Top Octave Synthe LSI	1
	IC2, 3, 5	SVIGUPD6304G	Tone Generator LSI	3
	IC7~20	SVIGM5218L	Operational Amplifier	14
	IC26	SVIGTC40H393	4 bit Binary Counter	1
	IC27	SVIGTC40H004	Hex Inverter	1
			DIODES	
	D1, 2	MA165TA5		2
	D3	SVDGRK14		1
			COMPONENT COMBINATIONS	
	Z1	EXBP811102MM	1KΩ×11	1
	Z2	EXBP810102MM	1KΩ×10	1
	Z3	EXBP812102MM	1KΩ×12	1
			COILS	
	L1, 2	ELQS180KB	18µH (Master Clock OSC)	2

Ref. No.	Part No.	Description	Per/Set
PRINTED CIRCUIT BOARDS			
○ SC1	SXPG123141	U. Sustain Control (USC)	1
SC2	SXPG12311	L. Sustain Control (LSC)	1
RESISTORS			
	ERDS2TJ101	100Ω	2
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ472	4.7KΩ	7
	ERDS2TJ562	5.6KΩ	1
	ERDS2TJ103	10KΩ	21
	ERDS2TJ273	27KΩ	1
	ERDS2TJ473	47KΩ	4
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
⚠	ERD2FCG220	🄵 22Ω, 1/4W, Fuse Type	1
CAPACITORS			
	ECEA0JU331	330μF, 6.3V	3
	ECEA1EU330	33μF, 25V	2
	ECSF1VE105	Ⓣ 1μF, 35V	5
	ECQG1H102KZ	0.001μF	5
	ECQG1H152KZ	0.0015μF	2
	ECCR1H330J	○ 33PF	2
	ECCR1H221J	○ 220PF	4
	ECCR1H471J	○ 470PF	22
	ECKR1E473ZV	○ 0.047μF	6

■ U. SUSTAIN CONTROL CIRCUIT (USC)

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~9	MA165TA5		9
RESISTORS			
	ERDS2TJ821	820Ω	1
	ERDS2TJ103	10KΩ	1
	ERDS2TJ563	56KΩ	1
	ERDS2TJ823	82KΩ	8
	ERDS2TJ334	330KΩ	8
CAPACITORS			
	ECQG1H102KZ	0.001μF	1
	ECSF1VE475	Ⓣ 4.7μF, 35V	8

■ L. SUSTAIN CONTROL CIRCUIT (LSC)

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~9	MA165TA5		9
RESISTORS			
	ERDS2TJ821	820Ω	1
	ERDS2TJ103	10KΩ	1
	ERDS2TJ563	56KΩ	1
	ERDS2TJ334	330KΩ	8
	ERDS2TJ155	1.5MΩ	8
CAPACITORS			
	ECQG1H102KZ	0.001μF	1
	ECSF1VZ105	Ⓣ 1μF, 35V	8

■ ORGAN CIRCUIT (ORG)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1~7, 9	SVIGM5218L	Operational Amplifier	8
IC10	SVIGUPD4066B	Quadruple Bilateral Switch	1
RESISTORS			
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ682	6.8KΩ	5
	ERDS2TJ822	8.2KΩ	4
	ERDS2TJ103	10KΩ	8
	ERDS2TJ123	12KΩ	5
	ERDS2TJ153	15KΩ	11
	ERDS2TJ183	18KΩ	6
	ERDS2TJ223	22KΩ	12
	ERDS2TJ273	27KΩ	10
	ERDS2TJ333	33KΩ	12
	ERDS2TJ393	39KΩ	8
	ERDS2TJ473	47KΩ	18
	ERDS2TJ563	56KΩ	9
	ERDS2TJ683	68KΩ	9
	ERDS2TJ823	82KΩ	10
	ERDS2TJ104	100KΩ	4
	ERDS2TJ124	120KΩ	5
	ERDS2TJ154	150KΩ	5
	ERDS2TJ184	180KΩ	2
	ERDS2TJ224	220KΩ	2
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA0JU101	100μF, 6.3V	1
	ECEA1CU470	47μF, 16V	1
	ECEA1EU330	33μF, 25V	2
	ECEA1HN010S	Ⓝ 1μF, 50V	2
	ECQG1H682KZ	0.0068μF	1
	ECQM1H103KV	0.01μF	1
	ECQM1H153KV	0.015μF	1
	ECQM1H223KV	0.022μF	2
	ECQM1H333KV	0.033μF	1
	ECQM1H473KV	0.047μF	2
	ECQB1H102JZ	ⓉⒻ 0.001μF	12
	ECQB1H152JZ	ⓉⒻ 0.0015μF	8
	ECQB1H222JZ	ⓉⒻ 0.0022μF	10
	ECQB1H332JZ	ⓉⒻ 0.0033μF	10
	ECQB1H472JZ	ⓉⒻ 0.0047μF	14
	ECQB1H682JZ	ⓉⒻ 0.0068μF	14
	ECQB1H103JZ	ⓉⒻ 0.01μF	16
	ECQB1H153JZ	ⓉⒻ 0.015μF	6
	ECQB1H223JZ	ⓉⒻ 0.022μF	6
	ECQB1H333JZ	ⓉⒻ 0.033μF	2
	ECQB1H473JZ	ⓉⒻ 0.047μF	2
	ECQB1H683JZ	ⓉⒻ 0.068μF	4
	ECQV1H104JZ	ⓉⒻ 0.1μF	2
	ECCR1H151J	○ 150PF	3
	ECCR1H221J	○ 220PF	2
	ECCR1H331J	○ 330PF	6
	ECCR1H471J	○ 470PF	2
	ECCR1H681J	○ 680PF	11
	ECKR1E473ZV	○ 0.047μF	5

■ PERCUSSIVE TONE CIRCUIT (PCT)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1~4, 7~15	SVIGM5218L	Operational Amplifier	13
IC5, 6, 16	SVIGM5241L	Dual VCF (Voltage Controlled Filter)	3
TRANSISTORS			
Q1~7	2SJ40CD	FET	7
RESISTORS			
	ERDS2TJ152	1.5KΩ	4
	ERDS2TJ222	2.2KΩ	3
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ103	10KΩ	13
	ERDS2TJ153	15KΩ	2
	ERDS2TJ183	18KΩ	2
	ERDS2TJ223	22KΩ	8
	ERDS2TJ273	27KΩ	3
	ERDS2TJ333	33KΩ	5
	ERDS2TJ393	39KΩ	6
	ERDS2TJ473	47KΩ	10
	ERDS2TJ563	56KΩ	13
	ERDS2TJ683	68KΩ	9
	ERDS2TJ823	82KΩ	1
	ERDS2TJ104	100KΩ	5
	ERDS2TJ124	120KΩ	4
	ERDS2TJ154	150KΩ	4
	ERDS2TJ224	220KΩ	2
	ERDS2TJ334	330KΩ	9
	ERDS2TJ394	390KΩ	2
	ERDS2TJ474	470KΩ	12
	ERDS2TJ564	560KΩ	4
	ERDS2TJ684	680KΩ	4
	ERDS2TJ105	1MΩ	7
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA1EU470	47μF, 25V	2
	ECEA1HN010S	Ⓝ 1μF, 50V	1
	ECQG1H102KZ	0.001μF	3
	ECQG1H152KZ	0.0015μF	7
	ECQG1H222KZ	0.0022μF	2
	ECQG1H332KZ	0.0033μF	6
	ECQG1H472KZ	0.0047μF	5
	ECQG1H682KZ	0.0068μF	5
	ECQM1H103KV	0.01μF	2
	ECQM1H153KV	0.015μF	5
	ECQM1H223KV	0.022μF	3
	ECQM1H333KV	0.033μF	4
	ECQM1H473KV	0.047μF	4
	ECQM1H683KV	0.068μF	2
	ECCR1H470J	○ 47PF	1
	ECCR1H680J	○ 68PF	4
	ECCR1H101J	○ 100PF	6
	ECCR1H151J	○ 150PF	2
	ECCR1H221J	○ 220PF	4
	ECCR1H331J	○ 330PF	11
	ECCR1H471J	○ 470PF	5
	ECCR1H681J	○ 680PF	7
	ECKR1E473ZV	○ 0.047μF	6

■ ORCHESTRAL PRESETS CIRCUIT (OPS)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM8041145	1 Chip 8 bit Microcomputer	1
IC2	SVIGNJM082D	Operational Amplifier	1
IC3	SVIGTC40H004	Hex Inverter	1
IC4, 8, 9, 14, 16	SVIGM5218L	Operational Amplifier	5
IC5	SVIGBA6704	VCF (Voltage Controlled Filter)	1
IC6	SVIGHD14051B	8-channel Multiplexer	1
IC7	SVIGTC4053BP	Triple 2-channel Multiplexer	1
IC13, 17	SVIGUPC1252H	VCA (Voltage Controlled Amplifier)	2
IC15	SVIGUPC1253H	RMS Level Sensor	1
TRANSISTORS			
Q1, 2	2SJ40CD	FET	2
DIODES			
D1, 2	MA165TA5		2
D3, 4	MA4120M		2
COMPONENT COMBINATION			
Z1	EXBP88334MM	330KΩ×8	1
CERAMIC OSCILLATOR			
X1	SVQGCSA600MT	6MHz	1
SEMI-FIXED RESISTOR			
VR1	EVN60AA00B14	10KΩ B	1
RESISTORS			
	ERDS2TJ220	22Ω	1
	ERDS2TJ331	330Ω	2
	ERDS2TJ102	1KΩ	2
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ472	4.7KΩ	7
	ERDS2TJ682	6.8KΩ	2
	ERDS2TJ882	8.2KΩ	1
	ERDS2TJ103	10KΩ	5
	ERDS2TJ123	12KΩ	2
	ERDS2TJ153	15KΩ	7
	ERDS2TJ223	22KΩ	5
	ERDS2TJ273	27KΩ	2
	ERDS2TJ333	33KΩ	9
	ERDS2TJ393	39KΩ	1
	ERDS2TJ473	47KΩ	1
	ERDS2TJ683	68KΩ	2
	ERDS2TJ823	82KΩ	4
	ERDS2TJ104	100KΩ	6
	ERDS2TJ154	150KΩ	2
	ERDS2TJ184	180KΩ	1
	ERDS2TJ274	270KΩ	1
	ERDS2TJ394	390KΩ	1
	ERDS2TJ474	470KΩ	1
	ERDS2TJ564	560KΩ	1
	ERDS2TJ105	1MΩ	2
	ERDS2TJ225	2.2MΩ	2
	EROS2TKF2201	2.2KΩ, ±1%	2
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	3
⚠	ERD2FCG101	🄵 100Ω, 1/4W, Fuse Type	2

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
	ECEA1CU100	10μF, 16V	2
	ECEA1CU470	47μF, 16V	3
	ECEA1CU101	100μF, 16V	1
	ECEA1EU100	10μF, 25V	1
	ECEA1EU470	47μF, 25V	2
	ECEA1HU010	1μF, 50V	5
	ECEA1HN010S	Ⓝ 1μF, 50V	4
	ECQG1H102KZ	0.001μF	2
	ECQG1H152KZ	0.0015μF	1
	ECQG1H222KZ	0.0022μF	1
	ECQG1H472KZ	0.0047μF	3
	ECQG1H682KZ	0.0068μF	4
	ECQM1H103KV	0.01μF	3
	ECQM1H153KV	0.015μF	2
	ECQM1H223KV	0.022μF	1
	ECQM1H333KV	0.033μF	2
	ECQM1H683KV	0.068μF	1
	ECQM1H104KV	0.1μF	3
	ECQV1H334JZ	(TF) 0.33μF	1
	ECQV1H474JZ	(TF) 0.47μF	1
	ECCR1H330J	○ 33PF	3
	ECCR1H470J	○ 47PF	3
	ECCR1H101J	○ 100PF	1
	ECCR1H331J	○ 330PF	1
	ECKR1E473ZV	○ 0.047μF	7

■ DIGITAL PERCUSSIVE PRESETS CIRCUIT (DPPS)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN40174B	Hex D-Type Flip Flop	1
IC2	SVIGTC40H002	Quadruple 2-Input NOR Gate	1
IC3	SVIGUPD6312	Digital Sound Processor	1
○ IC4	SVIG1000C063	1M bit Mask P-ROM	1
IC6	EHMMS466	12 bit D-A Converter	1
IC7~14	MN74HC4066	Quadruple Bilateral Switch	8
IC15~17, 19	SVIGM5218L	Operational Amplifier	4
IC20	SVIGM5241L	Dual VCF (Voltage Controlled Filter)	1
TRANSISTORS			
Q3~5	2SJ40CD	FET	3
QUARTZ OSCILLATOR			
X1	SVQG43U8000T	8MHz	1
SEMI-FIXED RESISTOR			
VR1	EVSG0E1B472A	4.7KΩ B	1
RESISTORS			
	ERDS2TJ151	150Ω	8
	ERDS2TJ391	390Ω	16
	ERDS2TJ102	1KΩ	3
	ERDS2TJ152	1.5KΩ	1
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ472	4.7KΩ	2
	ERDS2TJ682	6.8KΩ	2
	ERDS2TJ223	22KΩ	4
	ERDS2TJ273	27KΩ	6
	ERDS2TJ333	33KΩ	1
	ERDS2TJ473	47KΩ	15
	ERDS2TJ563	56KΩ	2
	ERDS2TJ683	68KΩ	1
	ERDS2TJ823	82KΩ	1
	ERDS2TJ104	100KΩ	5
	ERDS2TJ184	180KΩ	3
	ERDS2TJ105	1MΩ	3
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
	ERD2FCG220	🄵 22Ω, 1/4W, Fuse Type	1
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	4
	ECEA0JU331	330μF, 6.3V	1
	ECEA1CU100	10μF, 16V	1
	ECEA1CU101	100μF, 16V	2
	ECEA1HU010	1μF, 50V	3
	ECEA1HN010S	Ⓝ 1μF, 50V	1
	ECQB1H102JZ	(TF) 0.001μF	8
	ECQB1H152JZ	(TF) 0.0015μF	1
	ECQB1H332JZ	(TF) 0.0033μF	3
	ECQB1H472JZ	(TF) 0.0047μF	10
	ECQV1H104JZ	(TF) 0.1μF	1
	ECQV1H334JZ	(TF) 0.33μF	1
	ECCR1H220J	○ 22PF	1
	ECCR1H330J	○ 33PF	1
	ECCR1H101J	○ 100PF	5
	ECCR1H221J	○ 220PF	1
	ECCR1H331J	○ 330PF	3
	ECCR1H471J	○ 470PF	5
	ECKR1E473ZV	○ 0.047μF	17

■ DIGITAL SOLO/BASS/ACCOMPANIMENT CIRCUIT (DSBA)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN40174B	Hex D-Type Flip Flop	1
IC2	SVIGTC40H002	Quadruple 2-Input NOR Gate	1
IC3	SVIGUPD6312	Digital Sound Processor	1
○ IC4	SVIG1000C098	1M bit Mask P-ROM	1
○ IC5	SVIG1000C099	1M bit Mask P-ROM	1
IC7~14	MN74HC4066	Quadruple Bilateral Switch	8
IC15	SVIGBA9221	12 bit D-A Converter	1
IC16	MN74HC4051	8-channel Multiplexer	1
IC17	SVIGM5238L	Operational Amplifier	1
IC18~24	SVIGM5218L	Operational Amplifier	7
IC25	SVIGM5241L	Dual VCF (Voltage Controlled Filter)	1
TRANSISTORS			
Q1~5	2SJ40CD	FET	5
Q6	2SC1047C		1
COMPONENT COMBINATION			
Z1	EXKS14Z2073		1
QUARTZ OSCILLATOR			
X1	SVQG43U8000T		1

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
	ERDS2TJ151	150Ω	8
	ERDS2TJ331	330Ω	16
	ERDS2TJ471	470Ω	3
	ERDS2TJ681	680Ω	2
	ERDS2TJ102	1KΩ	3
	ERDS2TJ152	1.5KΩ	2
	ERDS2TJ222	2.2KΩ	2
	ERDS2TJ332	3.3KΩ	1
	ERDS2TJ472	4.7KΩ	3
	ERDS2TJ682	6.8KΩ	6
	ERDS2TJ103	10KΩ	2
	ERDS2TJ123	12KΩ	1
	ERDS2TJ183	18KΩ	1
	ERDS2TJ223	22KΩ	1
	ERDS2TJ333	33KΩ	3
	ERDS2TJ393	39KΩ	1
	ERDS2TJ473	47KΩ	17
	ERDS2TJ563	56KΩ	4
	ERDS2TJ823	82KΩ	1
	ERDS2TJ104	100KΩ	4
	ERDS2TJ154	150KΩ	2
	ERDS2TJ224	220KΩ	4
	ERDS2TJ105	1MΩ	5
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
⚠	ERD2FCG220	🄵 22Ω, 1/4W, Fuse Type	1
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	2
	ECEA0JU331	330μF, 6.3V	1
	ECEA1EU470	47μF, 25V	2
	ECEA1HU010	1μF, 50V	2
	ECQB1H102JZ	(TF) 0.001μF	9
	ECQB1HJ152Z	(TF) 0.0015μF	1
	ECQB1H332JZ	(TF) 0.0033μF	2
	ECQB1H472JZ	(TF) 0.0047μF	11
	ECQB1H103JZ	(TF) 0.01μF	1
	ECQB1H223JZ	(TF) 0.022μF	1
	ECCR1H220J	○ 22PF	1
	ECCR1H330J	○ 33PF	2
	ECCR1H680J	○ 68PF	1
	ECCR1H101J	○ 100PF	5
	ECCR1H151J	○ 150PF	2
	ECCR1H331J	○ 330PF	3
	ECCR1H471J	○ 470PF	4
	ECCR1H681J	○ 680PF	2
	ECKR1E473ZV	○ 0.047μF	21

■ DRUM PERCUSSION CIRCUIT (DP)

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
○	IC1	MN50015PGQ	Gate Array	1
○	IC2	SVIG1000C061	1M bit Mask P-ROM	1
○	IC3	SVIG1000C062	1M bit Mask P-ROM	1
	IC4~7, 9	SVIGM5218L	Operational Amplifier	5
	IC8	SVIGM5241L	Dual VCF (Voltage Controlled Filter)	1
	IC10	SVIGHA17008P	8 bit D-A Converter	1
	IC11	SVIGM5238L	Operational Amplifier	1
	IC12, 13	SVIGHD14051B	8-channel Multiplexer	2

Ref. No.	Part No.	Description	Per/Set
TRANSISTOR			
Q1	2SC1047C		1
COMPONENT COMBINATION			
Z3	EXBLD8102G		1
RESISTORS			
	ERDS2TJ471	470Ω	2
	ERDS2TJ102	1KΩ	1
	ERDS2TJ152	1.5KΩ	1
	ERDS2TJ222	2.2KΩ	5
	ERDS2TJ332	3.3KΩ	7
	ERDS2TJ472	4.7KΩ	4
	ERDS2TJ682	6.8KΩ	6
	ERDS2TJ103	10KΩ	1
	ERDS2TJ223	22KΩ	4
	ERDS2TJ333	33KΩ	6
	ERDS2TJ393	39KΩ	4
	ERDS2TJ473	47KΩ	4
	ERDS2TJ823	82KΩ	1
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	1
	ECEA1CU101	100μF, 16V	1
	ECEA1EU470	47μF, 25V	2
	ECEA1HN010S	Ⓝ 1μF, 50V	2
	ECQG1H102KZ	0.001μF	2
	ECQG1H152KZ	0.0015μF	2
	ECCR1H470J	○ 47PF	1
	ECCR1H680J	○ 68PF	2
	ECCR1H151J	○ 150PF	2
	ECCR1H471J	○ 470PF	2
	ECCR1H681J	○ 680PF	2
	ECKR1E473ZV	○ 0.047μF	7

■ SELECTOR CIRCUIT (SEL)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIG65002018	Gate Array	1
IC2~5	SVIGM53217	Hex Buffer	4
IC6~8, 10, 11	SVIGUPD4066B	Quadruple Bilateral Switch	5
IC9, 12~15	SVIGM5218L	Operational Amplifier	5
TRANSISTORS			
Q1, 4, 5, 8, 9, 12, 13, 16	2SA1015GR		8
Q2, 3, 6, 7, 10, 11, 14, 15	2SC1815GR		8
Q17	2SJ40CD	FET	1
COMPONENT COMBINATIONS			
Z1	EXBP84222MM	2.2KΩ×4	1
Z2, 3	EXBP88222MM	2.2KΩ×8	2
Z4	EXBP88102MM	1KΩ×8	1
Z5~8	SREG6A0511MM	Custom Block Resistor	4

Ref. No.	Part No.	Description	Per/Set
SEMI-FIXED RESISTOR			
VR1	EVN60AA00B54	50KΩ B	1
RESISTORS			
	ERDS2TJ151	150Ω	2
	ERDS2TJ471	470Ω	3
	ERDS2TJ102	1KΩ	16
	ERDS2TJ152	1.5KΩ	3
	ERDS2TJ222	2.2KΩ	3
	ERDS2TJ332	3.3KΩ	4
	ERDS2TJ472	4.7KΩ	8
	ERDS2TJ223	22KΩ	1
	ERDS2TJ683	68KΩ	1
	ERDS2TJ104	100KΩ	3
	ERDS2TJ154	150KΩ	2
	ERDS2TJ224	220KΩ	10
	ERDS2TJ334	330KΩ	3
	ERDS2TJ105	1MΩ	1
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	3
CAPACITORS			
	ECEA1CU100	10μF, 16V	8
	ECEA1CU470	47μF, 16V	1
	ECEA1CU101	100μF, 16V	2
	ECEA1CU221	220μF, 16V	2
	ECEA1CU331	330μF, 16V	1
	ECEA1EU330	33μF, 25V	1
	ECEA1HU010	1μF, 50V	2
	ECQG1H102KZ	0.001μF	1
	ECQG1H152KZ	0.0015μF	2
	ECQG1H222KZ	0.0022μF	4
	ECQG1H332KZ	0.0033μF	5
	ECQG1H472KZ	0.0047μF	2
	ECQG1H682KZ	0.0068μF	1
	ECQM1H223KV	0.022μF	3
	ECQM1H333KV	0.033μF	2
	ECQM1H473KV	0.047μF	4
	ECCR1H220J	○ 22PF	3
	ECCR1H330J	○ 33PF	5
	ECKR1E473ZV	○ 0.047μF	3

■ TREMOLO & PHASER MODULATION CIRCUIT (LPM)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1, 5, 7, 10, 11, 17~22	SVIGM5218L	Operational Amplifier	11
IC2, 8	MN3006	BBD for Audio Signal Delays (128-stage)	2
IC3, 6, 9	SVIGMSM4011	Quadruple 2-Input NAND Gate	3
IC4	AN6913	Dual Comparator	1
IC12, 13	SVIGUPD4066B	Quadruple Bilateral Switch	2
IC14, 15	SVIGBA6110	VCA (Voltage Controlled Amplifier)	2
TRANSISTORS			
Q1~4	2SC2320LFG		4

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~5	MA165TA5		5
SEMI-FIXED RESISTOR			
VR1	EVN60AA00B24	20KΩ B	1
RESISTORS			
	ERDS2TJ221	220Ω	1
	ERDS2TJ102	1KΩ	7
	ERDS2TJ152	1.5KΩ	3
	ERDS2TJ222	2.2KΩ	4
	ERDS2TJ332	3.3KΩ	4
	ERDS2TJ472	4.7KΩ	12
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ822	8.2KΩ	1
	ERDS2TJ103	10KΩ	7
	ERDS2TJ153	15KΩ	2
	ERDS2TJ223	22KΩ	3
	ERDS2TJ273	27KΩ	1
	ERDS2TJ333	33KΩ	25
	ERDS2TJ393	39KΩ	3
	ERDS2TJ473	47KΩ	12
	ERDS2TJ683	68KΩ	2
	ERDS2TJ104	100KΩ	9
	ERDS2TJ154	150KΩ	10
	ERDS2TJ184	180KΩ	3
	ERDS2TJ224	220KΩ	2
	ERDS2TJ684	680KΩ	1
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
⚠	ERD2FCG220	🄵 22Ω, 1/4W, Fuse Type	3
CAPACITORS			
	ECEA1CU100	10μF, 16V	1
	ECEA1CU470	47μF, 16V	3
	ECEA1EU330	33μF, 25V	5
	ECEA1EU4R7	4.7μF, 25V	1
	ECEA1EU470	47μF, 25V	2
	ECEA1HU010	1μF, 50V	2
	ECEA1HU3R3	3.3μF, 50V	1
	ECEA1HN010S	Ⓝ 1μF, 50V	4
	ECEA50ZR47	Ⓩ 0.47μF, 50V	1
	ECQG1H102KZ	0.001μF	3
	ECQG1H152KZ	0.0015μF	2
	ECQG1H222KZ	0.0022μF	2
	ECQG1H332KZ	0.0033μF	2
	ECQM1H103KV	0.01μF	8
	ECQM1H223KV	0.022μF	1
	ECQM1H333KV	0.033μF	1
	ECQM1H473KV	0.047μF	6
	ECQM1H683KV	0.068μF	1
	ECQV1H224JZ	(TF) 0.22μF	2
	ECCR1H330J	○ 33PF	2
	ECCR1H680J	○ 68PF	1
	ECCR1H101J	○ 100PF	8
	ECCR1H681J	○ 680PF	1
	ECKR1E473ZV	○ 0.047μF	6

■ CELESTE & STRING ENSEMBLE CIRCUIT (CSM)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1~4	SVIGM5218L	Operational Amplifier	4
IC5~10	SVIGMSM4011	Quadruple 2-Input NAND Gates	6
IC11~13	MN3004	BBD for Audio Signal Delays (512-stage)	3
IC14~16	MN3006	BBD for Audio Signal Delays (128-stage)	3
TRANSISTORS			
Q1~14	2SC2320LFG		14
DIODES			
D1~13	MA165TA5		13
SEMI-FIXED RESISTORS			
VR1, 2	EVN60AA00B24	20KΩ B	2
RESISTORS			
	ERDS2TJ331	330Ω	6
	ERDS2TJ102	1KΩ	5
	ERDS2TJ332	3.3KΩ	15
	ERDS2TJ103	10KΩ	12
	ERDS2TJ153	15KΩ	12
	ERDS2TJ183	18KΩ	1
	ERDS2TJ223	22KΩ	6
	ERDS2TJ333	33KΩ	9
	ERDS2TJ473	47KΩ	8
	ERDS2TJ823	82KΩ	3
	ERDS2TJ104	100KΩ	16
	ERDS2TJ154	150KΩ	18
	ERDS2TJ224	220KΩ	6
	ERDS2TJ274	270KΩ	3
⚠	ERD2FCG220	Ⓕ 22Ω, 1/4W, Fuse Type	8
CAPACITORS			
	ECEA1CU100	10μF, 16V	1
	ECEA1CU101	100μF, 16V	1
	ECEA1EU330	33μF, 25V	3
	ECEA1EU470	47μF, 25V	6
	ECEA1HUR47	0.47μF, 50V	3
	ECEA1HU2R2	2.2μF, 50V	6
	ECEA1HU010	1μF, 50V	1
	ECEA1HN010S	Ⓝ 1μF, 50V	1
	ECEA50ZR15	ⓩ 0.15μF, 50V	3
	ECQG1H152KZ	0.0015μF	3
	ECQG1H332KZ	0.0033μF	1
	ECQG1H682KZ	0.0068μF	3
	ECQM1H223KV	0.022μF	4
	ECCR1H680J	○ 68PF	3
	ECCR1H101J	○ 100PF	12
	ECCR1H221J	○ 220PF	3
	ECCR1H471J	○ 470PF	7
	ECCR1H681J	○ 680PF	3

■ MIXING CIRCUIT (MIX)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1, 4	SVIGUPC1253H	RMS Level Sensor	2
IC2, 3, 5~7	SVIGUPC1252H	VCA (Voltage Controlled Amplifier)	5
IC8~13, 18, 19, 22, 24, 25	SVIGM5218L	Operational Amplifier	11
IC14, 15	SVIGLM1894N	Noise Reduction	2
IC16, 17, 21	SVIGM5241L	Dual VCF (Voltage Controlled Filter)	3
TRANSISTORS			
Q1~5, 8	2SJ40CD	FET	6
Q6	2SC2320LFG		1
Q7	2SA933STRS		1
DIODES			
D1, 5~7	MA165TA5		4
COMPONENT COMBINATION			
Z1	EXBP88105MM	1MΩ×8	1
SEMI-FIXED RESISTORS			
VR1, 2	EVSG0T1B104A	100KΩ B	2
RESISTORS			
	ERDS2TJ100	10Ω	2
	ERDS2TJ101	100Ω	6
	ERDS2TJ331	330Ω	5
	ERDS2TJ681	680Ω	2
	ERDS2TJ102	1KΩ	2
	ERDS2TJ152	1.5KΩ	3
	ERDS2TJ222	2.2KΩ	3
	ERDS2TJ332	3.3KΩ	6
	ERDS2TJ472	4.7KΩ	11
	ERDS2TJ682	6.8KΩ	4
	ERDS2TJ103	10KΩ	5
	ERDS2TJ153	15KΩ	6
	ERDS2TJ183	18KΩ	6
	ERDS2TJ223	22KΩ	1
	ERDS2TJ473	47KΩ	4
	ERDS2TJ563	56KΩ	1
	ERDS2TJ683	68KΩ	5
	ERDS2TJ823	82KΩ	4
	ERDS2TJ104	100KΩ	9
	ERDS2TJ124	120KΩ	2
	ERDS2TJ154	150KΩ	16
	ERDS2TJ184	180KΩ	1
	ERDS2TJ224	220KΩ	2
	ERDS2TJ334	330KΩ	4
	ERDS2TJ474	470KΩ	2
	ERDS2TJ684	680KΩ	3
	ERDS2TJ105	1MΩ	6
	ERDS2TJ225	2.2MΩ	4
CAPACITORS			
	ECEA1CU470	47μF, 16V	9
	ECEA1EU100	10μF, 25V	4
	ECEA1HU010	1μF, 50V	15
	ECEA1HN010S	Ⓝ 1μF, 50V	6
	ECEA50MR1	(MS) 0.1μF, 50V	2

Ref. No.	Part No.	Description	Per/Set
	ECQG1H102KZ	0.001µF	6
	ECQG1H222KZ	0.0022µF	1
	ECQG1H332KZ	0.0033µF	3
	ECQG1H472KZ	0.0047µF	3
	ECQG1H682KZ	0.0068µF	1
	ECQM1H153KV	0.015µF	6
	ECQM1H333KV	0.033µF	2
	ECQM1H473KV	0.047µF	3
	ECQV1H474JZ	(TF) 0.47µF	1
	ECCR1H100J	○ 10PF	1
	ECCR1H470J	○ 47PF	3
	ECCR1H680J	○ 68PF	1
	ECCR1H101J	○ 100PF	1
	ECCR1H221J	○ 220PF	2
	ECCR1H681J	○ 680PF	3
	ECKR1E473ZV	○ 0.047µF	3

■ REVERB CIRCUIT (REV)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1, 3, 5, 6, 8, 9	SVIGM5218L	Operational Amplifier	6
IC2, 4, 7	AN6913	Dual Comparator	3
IC10	SVIGTC40H000	Quadruple 2-Input Positive NAND Gate	1
IC11	SVIGM5K4164	Dynamic RAM	1
IC12~27	SVIGM5225L	ADM (Adapt Differential Modulation)	16
IC28	SVIG65010022	Gate Array	1
TRANSISTORS			
Q1~9	2SC2320LFG		9
Q10, 12, 14, 16	SVIGUPA76HA	Twin Transistor	4
SERAMIC OSCILLATOR			
X1	SVQGCSA800MT	8MHz	1
SEMI-FIXED RESISTORS			
VR1~3	EVSG0T1B473A	47KΩ B	3
RESISTORS			
	ERDS2TJ102	1KΩ	6
	ERDS2TJ222	2.2KΩ	16
	ERDS2TJ472	4.7KΩ	5
	ERDS2TJ822	8.2KΩ	16
	ERDS2TJ103	10KΩ	8
	ERDS2TJ223	22KΩ	6
	ERDS2TJ333	33KΩ	12
	ERDS2TJ473	47KΩ	16
	ERDS2TJ104	100KΩ	6
	ERDS2TJ124	120KΩ	3
	ERDS2TJ224	220KΩ	3
	ERDS2TJ474	470KΩ	2
	ERDS2TJ684	680KΩ	12
	ERDS2TJ105	1MΩ	1
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	1

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
	ECEA0JU470	47µF, 6.3V	1
	ECEA0JU331	330µF, 6.3V	1
	ECEA1CU221	220µF, 16V	1
	ECEA1EU330	33µF, 25V	1
	ECEA1EU101	100µF, 25V	1
	ECEA1HU010	1µF, 50V	2
	ECEA1CN100S	Ⓝ 10µF, 16V	1
	ECEA1HN010S	Ⓝ 1µF, 50V	3
	ECQG1H102KZ	0.001µF	17
	ECQG1H472KZ	0.0047µF	9
	ECQG1H682KZ	0.0068µF	3
	ECQM1H223KV	0.022µF	1
	ECQM1H333KV	0.033µF	10
	ECQV1H224JZ	(TF) 0.22µF	16
	ECQV1H334JZ	(TF) 0.33µF	6
	ECCR1H220J	○ 22PF	2
	ECCR1H680J	○ 68PF	1
	ECCR1H151J	○ 150PF	6
	ECCR1H221J	○ 220PF	1
	ECCR1H331J	○ 330PF	4
	ECKR1E473ZV	○ 0.047µF	8

■ MOTHER BOARD (MB)

Ref. No.	Part No.	Description	Per/Set
COILS			
○ L1	SLCG163307B8		1
L2, 3 EZ	SLQG16W33A	16µH, [EZ] only	2

■ UPPER CONTROL PANEL RIGHT CIRCUIT (CPR)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN15524PGP	1 chip 4 bit Microcomputer	1
IC2~5	SVIGM53217	Hex Buffer	4
IC6	MN1280R	Reset IC	1
TRANSISTORS			
Q1~4	2SA830B		4
Q5, 6	2SC1047C		2
DIODES			
S D2~13, 16~56, 58~77, 79~90	MA162A		85
D91, 92, 96~100, 102~113, 118~135, 137~150, 152~163	SEL2210SLFM1	LED (red)	63
D93~95, 101, 114~117	SEL2710KLFM1	LED (yellow)	8
COMPONENT COMBINATIONS			
Z2~4	EXBP88152MM		3

	Ref. No.	Part No.	Description	Per/Set
		CERAMIC OSCILLATOR		
	X1	EFOFC4004A3	4MHz	1
		SWITCHES		
		SSHG1029A	Switch, for Tang Type	16
		SSHG1030A	Switch, for Push Type	71
		RESISTORS		
		ERDS2TJ470	47Ω	22
		ERDS2TJ152	1.5KΩ	4
		ERDS2TJ222	2.2KΩ	1
		ERDS2TJ472	4.7KΩ	3
		ERDS2TJ103	10KΩ	5
		CAPACITORS		
		ECEA0JU470	47µF, 6.3V	1
		ECCR1H471J	○ 470PF	1
		ECKR1E473ZV	○ 0.047µF	1

■ UPPER CONTROL PANEL LEFT CIRCUIT (CPL)

	Ref. No.	Part No.	Description	Per/Set
		INTEGRATED CIRCUITS		
	IC1	MN15621PGA	1 chip 4 bit Microcomputer	1
	IC2~5	SVIGM53217	Hex Buffer	4
		TRANSISTORS		
	Q1~4	2SA830B		4
	Q5, 6	2SC1047C		2
		DIODES		
S	D1~6, 9, 12~20, 22~48, 50~56, 60~88	MA162A		79
	D89, 95~103, 105~108, 113~130, 134~147, 150~158	SEL2210SLFM1	LED (red)	55
	D92, 109~112	SEL2710KLFM1	LED (yellow)	5
		CERAMIC OSCILLATOR		
	X1	EF0A4R5M01A	4.5MHz	1
		SWITCHES		
		SSHG1029A	Switch, for Tang Type	30
		SSHG1030A	Switch, for Push Type	47

	Ref. No.	Part No.	Description	Per/Set
		RESISTORS		
		ERDS2TJ470	47Ω	20
		ERDS2TJ152	1.5KΩ	28
		ERDS2TJ222	2.2KΩ	1
		ERDS2TJ103	10KΩ	5
		CAPACITORS		
		ECEA0JU221	220µF, 6.3V	1
		ECEA1HK0R1	Ⓚ 0.1µF, 50V	1
		ECCR1H471J	○ 470PF	1
		ECKR1E473ZV	○ 0.047µF	1

■ LOWER CONTROL PANEL LEFT CIRCUIT (CPSL)

	Ref. No.	Part No.	Description	Per/Set
		INTEGRATED CIRCUITS		
	IC1	MN15524PGP	1 chip 4 bit Microcomputer	1
	IC2, 3	SVIGM53217	Hex Buffer	2
	IC4	SVIGTA61	Transistor Array	1
	IC5	MN1280R	Reset IC	1
		TRANSISTORS		
	Q1, 2	2SC1047C		2
		DIODES		
	D2~18, 20~49, 92, 93	MA165TA5		49
	D54, 56~58, 61~67, 69, 71, 73~97	SEL2210SLFM1	LED (red)	38
	D55, 59, 60, 70, 72, 98, 99	SEL2710KLFM1	LED (yellow)	7
		CERAMIC OSCILLATOR		
	X1	EFOFC4004A3	4MHz	1
		SWITCHES		
		SSHG1030A	Switch, for Push Type	47
		SSSG1010A	Slide Switch, Transpose	1
		VARIABLE RESISTOR		
	VR1	EVD06425B24G	20KΩ B, Tempo Control	1
		RESISTORS		
		ERDS2TJ470	47Ω	12
		ERDS2TJ152	1.5KΩ	26
		ERDS2TJ222	2.2KΩ	1
		ERDS2TJ472	4.7KΩ	3
		ERDS2TJ103	10KΩ	5
		CAPACITORS		
		ECEA0JU470	47µF, 6.3V	1
		ECCR1H471J	○ 470PF	1
		ECKR1E473ZV	○ 0.047µF	1

■ LOWER CONTROL PANEL RIGHT CIRCUIT (CPSR)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN15524PGP	1 chip 4 bit Microcomputer	1
IC2	SVIGM53217	Hex Buffer	1
IC3	SVIGTA61	Transistor Array	1
IC4	MN1280R	Reset IC	1
TRANSISTORS			
Q5, 6	2SC1047C		2
DIODES			
D2~24	MA165TA5		23
D25~28, 30~32, 35~43, 46, 47	SEL2210SLFM1	LED (red)	18
D29, 33, 34, 44, 45	SEL2710KLFM1	LED (yellow)	5
CERAMIC OSCILLATOR			
X1	EFOFC4004A3	4MHz	1
SWITCHES			
	SSHG1030A	Switch, for Push Type	23
RESISTORS			
	ERDS2TJ470	47Ω	6
	ERDS2TJ152	1.5KΩ	10
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ472	4.7KΩ	3
	ERDS2TJ103	10KΩ	5
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	1
	ECCR1H471J	○ 470PF	1
	ECKR1E473ZV	○ 0.047μF	1
RESISTORS			
	ERDS2TJ472	4.7KΩ	2
	ERDS2TJ103	10KΩ	1
	ERDS2TJ334	330KΩ	8
CAPACITORS			
	ECEA0JU221	220μF, 6.3V	1
	ECEA1HKR22	Ⓚ 0.22μF, 50V	1
	ECCR1H330J	○ 33PF	2
	ECCR1H101J	○ 100PF	2
	ECCR1H471J	○ 470PF	1
	ECKR1E473ZV	○ 0.047μF	2

■ MUSICAL DISPLAY CIRCUIT (MD)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1, 2	MN15621PGA	1 chip 4 bit Microcomputer	2
IC3	SVIGUPD4066B	Quadruple Bilateral Switch	1
TRANSISTORS			
Q1, 3	2SC1685R		2
Q2, 4	2SC1047C		2
DIODE			
D1	MA165TA5		1
CERAMIC OSCILLATOR			
X1, 2	EF0A4R5M01A	4.5MHz	2

■ MEMORY PACK CONTROL CIRCUIT (MPC)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN15621PGB	1 Chip 4 bit Microcomputer	1
TRANSISTORS			
Q1, 2, 7	2SC1047C		3
Q3, 5, 6, 9~11	2SC2320LFG		6
Q4	2SA1015GR		1
DIODES			
D1	MA165TA5		1
D2	MA1036H	Zener	1
COMPONENT COMBINATION			
Z1	EXATA223S	Noise Suppression Filter	1
CERAMIC OSCILLATOR			
X1	EFOA4R5M01A	4.5MHz	1
RESISTORS			
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ472	4.7KΩ	2
	ERDS2TJ103	10KΩ	3
	ERDS2TJ223	22KΩ	1
	ERDS2TJ823	82KΩ	1
⚠	ERD2FCG101	🄵 100Ω, 1/4W, Fuse Type	1
CAPACITORS			
	ECEA1EU470	47μF, 25V	1
	ECEA50ZR1	Ⓩ 0.1μF, 50V	1
	ECCR1H330J	○ 33PF	1
	ECCR1H101J	○ 100PF	1
	ECCR1H471J	○ 470PF	1
	ECKR1E473ZV	○ 0.047μF	1

■ UPPER & LOWER KEYBOARD CIRCUIT (UKB & LKB)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGM74LS138	Decoder	1
DIODES			
D1~44	MA165TA5		44
COMPONENT COMBINATION			
Z1	EXATA223S	Noise Suppression Filter	1
SWITCHES			
	SSPG6001A	Rubber Switch (6 continuous)	5
	SSPG7001A	Rubber Switch (7 continuous)	2
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	1
	ECKR1E473ZV	○ 0.047μF	1

■ PEDAL KEYBOARD CIRCUIT (PKB)

Ref. No.	Part No.	Description	Per/Set
DIODES			
S D1~16	MA162A		16
SWITCH			
	SHGG50A	Rubber Switch (5 continuous)	3

■ JACK 1 CIRCUIT (JACK 1)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM5218L	Operational Amplifier	1
IC2	SVIGM74LS09	Quadruple 2-Input AND Gate	1
DIODES			
D1~5	MA165TA5		5
COIL			
L2	SLQG13W6D1	13.5μH	1
JACKS			
JK1	SJJG450A	Headphones Jack	1
JK2	SJJG210A	Mic Jack	1
JK3	SJJG400A	AUX Jack	1
JK4	SJJG230A	Line Out Jack	1
JK5	SJJG250A	Ext. I/O (FD)	1

Ref. No.	Part No.	Description	Per/Set
SWITCH			
SW1	SSSG2001A	Line Out Channel Selector Switch	1
RELAYS			
RL1, 2	SSYGMR30112		2
VARIABLE RESISTOR			
VR1	EWHD5A576A54	50KΩ A, Mic Volume	1
RESISTORS			
	ERDS2TJ681	680Ω	3
	ERDS2TJ102	1KΩ	3
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ472	4.7KΩ	6
	ERDS2TJ682	6.8KΩ	2
	ERDS2TJ103	10KΩ	2, 4 EZ
	ERDS2TJ154	150KΩ	1
	ERDS2TJ224	220KΩ	2
EZ	ERDS2TJ334	330KΩ, [EZ] only	2
⚠	ERD25FVJ680	Ⓕ 68Ω, 1/4W	1
⚠	ERD50FJ681	Ⓕ 680Ω, 1/2W	2
⚠	ERD50FJ102	Ⓕ 1KΩ, 1/2W	4
⚠	ERD50FJ152	Ⓕ 1.5KΩ, 1/2W	2
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA1EU470	47μF, 25V	2
	ECEA1HN010S	Ⓝ 1μF, 50V	2
EZ	ECQM1H103KV	0.01μF, [EZ] only	1
	ECCR1H101J	○ 100PF	2
	ECKR1E473ZV	○ 0.047μF	3

■ JACK 2 CIRCUIT (JACK 2)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM74LS05	Hex Inverter	1
IC2	SVIGTLP552	Photo Coupler	1
DIODES			
D1~7	MA165TA5		7
JACKS			
JK1, 2	SJSG1460A	MIDI In, MIDI Out	2
RESISTORS			
	ERDS2TJ221	220Ω	3
	ERDS2TJ331	330Ω	1
	ERDS2TJ472	4.7KΩ	1
CAPACITORS			
	ECEA1CU100	10μF, 16V	1
	ECKR1E473ZV	○ 0.047μF	2

■ NETWORK CIRCUIT (NW)

Ref. No.	Part No.	Description	Per/Set
COIL			
L2	SLCSC221KU	0.22mH	1
CAPACITOR			
	ECEA50Y2R2	Ⓨ 2.2μF, 50V	1

■ EXPRESSION CIRCUIT (EXP)

Ref. No.	Part No.	Description	Per/Set
Cds			
	SVEG5	Light Sensitive Device	1

■ FILTER 1 CIRCUIT (LF 1), [EZ] only

Ref. No.	Part No.	Description	Per/Set
COIL			
L1	SLQG10W10D1	10μH	1

■ FILTER 2 CIRCUIT (LF 2), [EZ] only

Ref. No.	Part No.	Description	Per/Set
COIL			
L1	SLQG13W4D1	13.5μH	1

■ POWER AMPLIFIER 1 CIRCUIT (PA 1)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
○ IC1	SVI3102	Power Amplifier	1
DIODES			
D2	MA4150M	Zener	1
D3~10	SVDS3V20	Rectifier	8
COIL			
L1	SLQG80W13A		1
RESISTORS			
	ERDS2TJ222	2.2KΩ	2
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ103	10KΩ	2
	ERDS2TJ223	22KΩ	2
	ERDS2TJ333	33KΩ	1
	ERDS2TJ683	68KΩ	2
	ERDS2TJ154	150KΩ	1
⚠	ERD50FJ6R8	Ⓕ 6.8Ω, 1/2W	2

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	2
	ECEA1CU330	33μF, 16V	1
	ECEA1HN010S	Ⓝ 1μF, 50V	1
	ECQG1H152KZ	0.0015μF	1
	ECQM1H103KV	0.01μF	1
	ECQM1H223KV	0.022μF	1
	ECQM1H473KV	0.047μF	2
	ECQV1H154JZ	(TF) 0.15μF	1
	ECCR1H331J	○ 330PF	1
	ECCR1H471J	○ 470PF	1
	ECKR1E473ZV	○ 0.047μF	2
	ECET50R682SW	6800μF, 50V	2
⚠	ECQE2A104MW	0.1μF, 250V,	1

■ POWER AMPLIFIER 2 CIRCUIT (PA 2)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
○ IC1	SVI3102	Power Amplifier	1
DIODE			
D2	MA4150M	Zener	1
RESISTORS			
	ERDS2TJ222	2.2KΩ	2
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ223	22KΩ	4
	ERDS2TJ333	33KΩ	2
	ERDS2TJ154	150KΩ	1
⚠	ERD50FJ6R8	Ⓕ 6.8Ω, 1/2W	2
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	2
	ECEA1CU330	33μF, 16V	1
	ECEA1HU100	10μF, 50V	2
	ECQG1H152KZ	0.0015μF	2
	ECQM1H103KV	0.01μF	2
	ECQM1H473KV	0.047μF	2
	ECCR1H471J	○ 470PF	2
	ECKR1E473ZV	○ 0.047μF	2

■ POWER SUPPLY CIRCUIT (PS)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	AN7815	Voltage Regulator	1
IC2	SVIGM51207L	Dual Comparator	1
IC3	AN7924F	Voltage Regulator	1
IC4	AN7915F	Voltage Regulator	1

Ref. No.	Part No.	Description	Per/Set
TRANSISTORS			
Q1, 2, 7	2SC2320LFG		3
Q3 MC XT	2SA933STRS	[MC][XT] only	1
Q4 MC XT	2SB951A		1
Q5	2SA933STRS		1
Q6	2SB953A		1
DIODES			
D1, 9	MA165TA5		2
D2, 3, 6, 7 ⚠	SVDGSM1A02LF	Rectifier	4
D4, 5 ⚠	SVDS2V20	Rectifier	2
D8	SVDGERC9102		1
D10	MA4051M	Zener	1
COILS			
L1	SLCG2A121T		1
L1 EZ	SLCG2A121TZ	[EZ] only	1
FUSES			
F2, 3 ⚠ MC XT	XBA1F30NU14	3A, 125V, [MC][XT] only	2
F4, 5 ⚠	XBA2C31TB0	T3.15A, 250V	2
RESISTORS			
	ERDS2TJ101	100Ω	3
MC XT	ERDS2TJ151	150Ω [MC][XT] only	1
MC XT	ERDS2TJ221	220Ω	1
	ERDS2TJ331	330Ω	2
	ERDS2TJ102	1KΩ	1
	ERDS2TJ472	4.7KΩ	3, (4)
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ103	10KΩ	5
	ERDS2TJ223	22KΩ	2
	ERDS2TJ333	33KΩ	1
	ERDS2TJ473	47KΩ	3
	ERDS2TJ104	100KΩ	2
⚠	ERG1ANJ221	Ⓕ 220Ω, 1W	1
⚠	ERX2ANJR22	Ⓕ 0.22Ω, 2W	1, (2)
CAPACITORS			
	ECEA0JU102	1000µF, 6.3V	1
	ECEA1CU330	33µF, 16V	1
	ECEA1VU100	10µF, 35V	3
	ECEA1VU222	2200µF, 35V	1
	ECEA1VU332	3300µF, 35V	1
	ECEA1HU010	1µF, 50V	1
	ECEA1HU330	33µF, 50V	1
	ECQG1H152KZ	0.0015µF	1
	ECQG1H472KZ	0.0047µF	1
	ECQM1H103KV	0.01µF	1
	ECCR1H101J	○ 100PF	1
	ECCR1H681J	○ 680PF	1
	ECKR1E473ZV	○ 0.047µF	1

■ AC POWER SUPPLY CIRCUIT (ACP)

Ref. No.	Part No.	Description	Per/Set
COILS			
○ L1 ⚠	SLTGLF4	Line Filter	1
L2 EZ	SLQG10W2D1	10µH, [EZ] only	1
FUSES			
F1 ⚠	XBA1F50NU14	5A, 125V, MC XT only	1
F1 ⚠	XBA2C50TB0	T5A, 250V EK XS XL XR X XX XV only	1
F2, 3 ⚠	XBA2C25TB0	T2.5A, 250V	2
F2 ⚠	XBA2C25TB0	T2.5A, 250V, other areas	1
CAPACITORS			
⚠	ECQU2A104MN	0.1µF, 250V	1
⚠	ECKCVA1472MF	○ 4700µF, 250V	1

■ OTHERS

Ref. No.	Part No.	Description	Per/Set
SWITCHES			
⚠	ESB90712V	Power Switch	1
MC ⚠	ESB70277T	Power Switch, [MC] only	1
EK XL ⚠ XR XS X XX XV	ESE37209	Voltage Selector, [EK][XL][XR][XS][X][XX] [XV] only	1
TRANSFORMERS			
○ ⚠	SLTG5S14	Power Transformer	1
○ MC XT ⚠	SLTG5S15	Power Transformer, [MC][XT] only	1
SPEAKERS			
○	EAS30PL142A	30cm, 6Ω	1
	EAS20PM223D	20cm, 6Ω	3
	EAS6HH29S	6cm, 8Ω	2
LED, LAMP			
	LN29RP	LED (Power Indicator)	1
	XAMR55P	Expression Lamp	1
AC CORDS, PLUG			
⚠	SJAG24	AC Cord	1
EK XS ⚠	SJAG25	AC Cord, [EK][XS] only	1
MC XT ⚠	SJAG22	AC Cord, [MC][XT] only	1
XL XR ⚠	SJAG23	AC Cord, [XL][XR] only	1
⚠ X XX XV	SJP5213-1	Attachment Plug, [X][XX][XV] only	1

■ WIRING PARTS (See wiring connection diagram on page II-7, II-8)

Ref. No.		Part No.	Description	Per/Set
○		SWKG0386ZA	Connector with Wire	1
○		SWKG0391ZA	Connector with Wire	1
		SWKG0430LTB	Connector with Wire	1
		SWKG0497LSA	Connector with Wire	1
		SWKG04100LSA	Connector with Wire	1
	EK XL XR XS X XX XV	SWKG04107ZA	Connector with Wire, [EK][XL][XR][XS][X][XX] [XV] only	1
○		SWKG0526ZA	Connector with Wire	1
○		SWKG0686ZA	Connector with Wire	1
○		SWKG0687ZA	Connector with Wire	1
○		SWKG0688ZA	Connector with Wire	1
○		SWKG0889LSA	Connector with Wire	1
		SWKG0890LSA	Connector with Wire	1
		SWKG1061ZA	Connector with Wire	1
○		SWKG1064LSA	Connector with Wire	1
	EZ	SWKG0480LSB	Connector with Wire } [EZ] only	1
	EZ	SWKG1042LSA	Connector with Wire	1
	EZ	SWEG460A	Wire	1

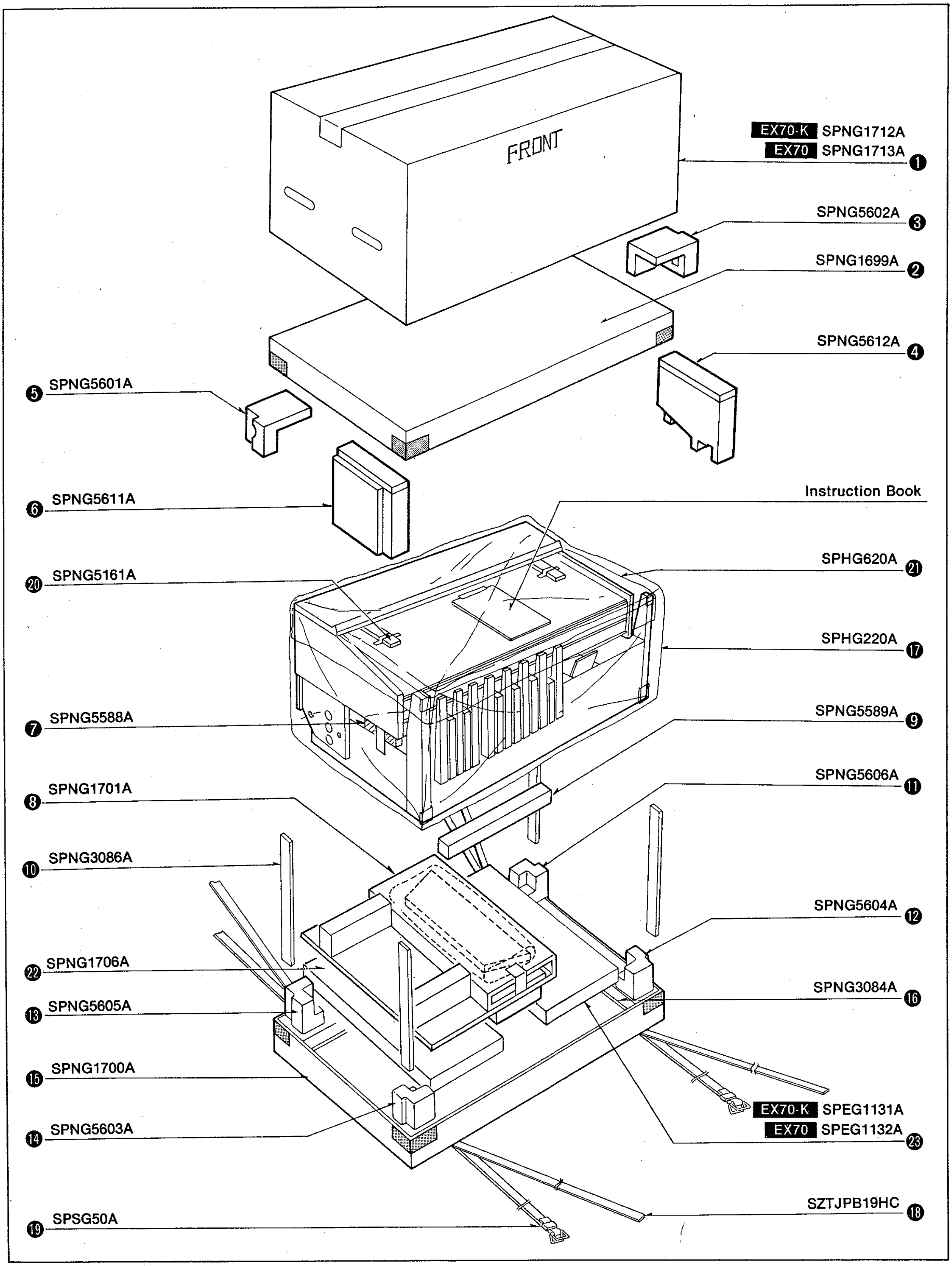
■ DIGITAL MEMORY PACK

Ref. No.	Part No.	Description	Per/Set
	SY-P2		
	SXPG12241	Memory Pack P.C.B.	1
IC1, 2	SVIGM512820R	16K bit CMOS Static RAM	2
D1	MA165TA5	Diode	1
Z1, 2	EXBEQ10104MM	Block Resistor, 100KΩ×10	2
SW1, 2	SSSG1001A	Switch	2
R1	ERDS2TJ103	Resistor, 10KΩ	1
R2~4	ERDS2TJ472	Resistor, 4.7KΩ	3
C1	ECSF35E1GE	Ⓣ Capacitor, 1μF, 35V	1
	SY-P3		
	SXPG12242	Memory Pack P.C.B.	1
IC2	SVIG6264LP15	64K bit CMOS Static RAM	1
D1	MA165TA5	Diode	1
Z1	EXBEQ10104MM	Block Resistor, 100KΩ×10	1
Z2	EXBEQ12104MM	Block Resistor, 100KΩ×12	1
SW1, 2	SSSG1001A	Switch	2
R1	ERDS2TJ103	Resistor, 10KΩ	1
R2, 3	ERDS2TJ472	Resistor, 4.7KΩ	2
C1	ECSF35E1GE	Ⓣ Capacitor, 1μF, 35V	1

■ PACKING PARTS

Ref. No.			Part No.	Description	Per/Set
○		EX70-K	SPNGEX70EA	Packing Parts Ass'y	1
○		EX70	SPNGEX70EB	Packing Parts Ass'y	1
○	1	EX70-K	SPNG1712A	Carton Box	(1)
○	1	EX70	SPNG1713A	Carton Box	(1)
○	2		SPNG1699A	Top Case	(1)
○	3		SPNG5602A	Pad, Rear Right Side	(1)
○	4		SPNG5612A	Pad, Front Right Side	(1)
○	5		SPNG5601A	Pad, Rear Left Side	(1)
○	6		SPNG5611A	Pad, Front Left Side	(1)
	7		SPNG5588A	Spacer, for Cabinet	(2)
○	8		SPNG1701A	Packing Parts, Music Rack	(1)
	9		SPNG5589A	Spacer, for Bench	(1)
○	10		SPNG3086A	Prop	(4)
○	11		SPNG5606A	Pad, Rear Right Side	(1)
○	12		SPNG5604A	Pad, Front Right Side	(1)
○	13		SPNG5605A	Pad, Rear Left Side	(1)
○	14		SPNG5603A	Pad, Front Left Side	(1)
○	15		SPNG1700A	Bottom Case	(1)
○	16		SPNG3084A	Frame	(1)
	17		SPHG220A	Polyethylene Bag	(1)
	18		SZTJPB19HC	Band	(2)
	19		SPSG50A	Band, with Ring	(2)
	20		SPNG5161A	Spacer, for Top Cover	2
	21		SPHG620A	Protection Cover, for Cabinet	1
○	22		SPNG1706A	Packing Parts, for Side Panel	1
○	23	EX70-K	SPEG1131A	Packing Parts, for Bench	1
○	23	EX70	SPEG1132A	Packing Parts, for Bench	1

PACKING


FRONT
EX70-K SPNG1712A
EX70 SPNG1713A ①
SPNG5602A ③
SPNG1699A ②
SPNG5612A ④
⑤ SPNG5601A
⑥ SPNG5611A
Instruction Book
SPHG620A ㉑
⑳ SPNG5161A
SPHG220A ⑰
⑦ SPNG5588A
SPNG5589A ⑨
⑧ SPNG1701A
SPNG5606A ⑪
⑩ SPNG3086A
SPNG5604A ⑫
㉒ SPNG1706A
⑬ SPNG5605A
SPNG3084A ⑯
⑮ SPNG1700A
EX70-K SPEG1131A
EX70 SPEG1132A ㉓
⑭ SPNG5603A
SZTJPB19HC ⑱
⑲ SPSG50A

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